STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: July 25, 2018

FROM: Matt Urban
Wetlands Program Manager

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
Conway, 25103

TO Gino Infascelli, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Bridge Design for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(p). The project is located on East Side Road in the Town of Conway, NH. The proposed work consists of installing an armoring layer of materials designed to resist erosion around the abutments and pier.

This project was reviewed at the Natural Resource Agency Coordination Meeting on May 20, 2015. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link: http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm

Mitigation for this project will consist of plantings. See mitigation report and plantings on the wetland impact plan.

A payment voucher has been processed for this application (Voucher #536911) in the amount of $2165.20.

The lead people to contact for this project are Robert Landry, Administrator, Bureau of Bridge Maintenance (271-2731 or robert.landry@dot.nh.gov) or Matt Urban, Wetlands Program Manager, Bureau of Environment (271-3226 or matt.urban@dot.nh.gov)

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Manager, Bureau of Environment.

MRU:mru
Enclosures
cc:
BOE Original
Town of Conway (4 copies via certified mail)
David Trubey, NH Division of Historic Resources (Cultural Review Within)
Bureau of Construction
Carol Henderson, NH Fish & Game (via electronic notification)
Maria Tur, US Fish & Wildlife (via electronic notification)
Mark Kern, US Environmental Protection Agency (via electronic notification)
Michael Hicks, US Army Corp of Engineers (via electronic notification)
Kevin Nyhan, BOE (via electronic notification)
Saco River Local Advisory Committee - inactive at this time.

S:\Environment\PROJECTS\CONWAY\25103\Wetlands\WETAPP - Bridge.doc

Standard Dredge & Fill Application
NHDES Water Division/ Wetlands Bureau

East Side Road Covered Bridge
(Bridge #167/067)
Scour Countermeasure Improvements

Town of Conway, NH

DOT Project Number 25103
CHA Project Number: 28819

Prepared for:
New Hampshire Department of Transportation
Bureau of Environment
Ronald Crickard, Chief
7 Hazen Drive
Concord, NH 03302

Prepared by:

11 King Court
Keene, NH 03431
Phone: (603) 357-2445
Fax: (603) 357-8770

July 2018

V:\Projects\ANY\K3\28819\Permitting\Wetalands Permit

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Section 1

NHDES Wetland Permit Application

NHDES-W-06-012

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management

Check the status of your application: www.des.nh.gov/onestop

RSA/Rule: RSA 482-A/ Env-Wt 100-900

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

1. REVIEW TIME: Indicate your Review Time below. To determine review time, refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. MITIGATION REQUIREMENT:

If mitigation is required a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if Mitigation is Required, please refer to the Determine if Mitigation is Required Frequently Asked Question.

Mitigation Pre-Application Meeting Date: Month: __ Day: __ Year: ____

☒ N/A - Mitigation is not required

3. PROJECT LOCATION:

Separate wetland permit applications must be submitted for each municipality that wetland impacts occur within.

ADDRESS: **East Side Road** TOWN/CITY: **Conway**

TAX MAP: BLOCK: LOT: UNIT:

USGS TOPO MAP WATERBODY NAME: **Saco River** ☐ NA STREAM WATERSHED SIZE: ☐ NA

LOCATION COORDINATES (If known): **45°58'59"N, 071°07'01"W** ☒ Latitude/Longitude ☐

4. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

The project involves the existing two-lane historic East Side Road Covered Bridge over the Saco River. The FHWA mandated Plan of Action proposed by NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and pier. The bridge is currently coded as scour critical has received approval for preservation funding. Countermeasures proposed include PGR and Class A/B stone.

5. SHORELINE FRONTAGE:

☐ NA This does not have shoreline frontage. SHORELINE FRONTAGE: **288.5**

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:

Please indicate if any of the following permit applications are required and, if required, the status of the application.

To determine if other Land Resources Management Permits are required, refer to the Land Resources Management Web Page.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	☐ YES ☒ NO	_____	☐ APPROVED ☐ PENDING ☐ DENIED
Individual Sewerage Disposal per RSA 485-A:2	☐ YES ☒ NO	_____	☐ APPROVED ☐ PENDING ☐ DENIED
Subdivision Approval Per RSA 485-A	☐ YES ☒ NO	_____	☐ APPROVED ☐ PENDING ☐ DENIED
Shoreland Permit Per RSA 483-B	☒ YES ☐ NO	_____	☐ APPROVED ☐ PENDING ☐ DENIED

7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **17** - **0857** .

b. ☒ Designated River the project is in ¼ miles of: **Saco River** ; and
date a copy of the application was sent to the Local River Management Advisory Committee: Month: __ Day: __ Year: ____
☐ N/A

8. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: **Landry, Robert - Adminstrator**

TRUST / COMPANY NAME: **NH Dept. of Transportation** | MAILING ADDRESS: **7 Hazen Drive**

TOWN/CITY: **Concord** | STATE: **NH** | ZIP CODE: **03302**

EMAIL or FAX: **Robert.Landry@dot.nh.gov** | PHONE: **(603) 271-2731**

ELECTRONIC COMMUNICATION: By initialing here: **RL**, I hereby authorize NHDES to communicate all matters relative to this application electronically.

9. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.: **Same**

TRUST / COMPANY NAME: | MAILING ADDRESS:

TOWN/CITY: | STATE: | ZIP CODE:

EMAIL or FAX: | PHONE:

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.

10. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: **Ashford, William C. - PE** | COMPANY NAME:**CHA Consulting, Inc.**

MAILING ADDRESS: **11 King Court**

TOWN/CITY: **Keene** | STATE: **NH** | ZIP CODE: **03431**

EMAIL or FAX: **Washford@chacompanies.com** | PHONE: **(603) 357-2445**

ELECTRONIC COMMUNICATION: By initialing here **WCA**, I hereby authorize NHDES to communicate all matters relative to this application electronically.

11. PROPERTY OWNER SIGNATURE:
See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for NHPA 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

Property Owner Signature	Print name legibly	Date
		/ /

MUNICIPAL SIGNATURES

12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.

2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.

3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

⇨ Town/City Clerk Signature	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

14. IMPACT AREA:
For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact
Permanent: impacts that will remain after the project is complete.
Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland		☐ ATF		☐ ATF
Scrub-shrub wetland		☐ ATF		☐ ATF
Emergent wetland		☐ ATF		☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream		☐ ATF	150/29	☐ ATF
Perennial Stream / River	3,986 / 388	☐ ATF	4,689 / 764	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	/	☐ ATF	Inclusive in Saco / River bank impact	☐ ATF
Bank - Perennial stream / River	751 / 112	☐ ATF	1,400 / 193	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland		☐ ATF		☐ ATF
Prime wetland buffer		☐ ATF		☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
Vernal Pool		☐ ATF		☐ ATF
TOTAL	4,737 / 500		6,089 / 974XXX	

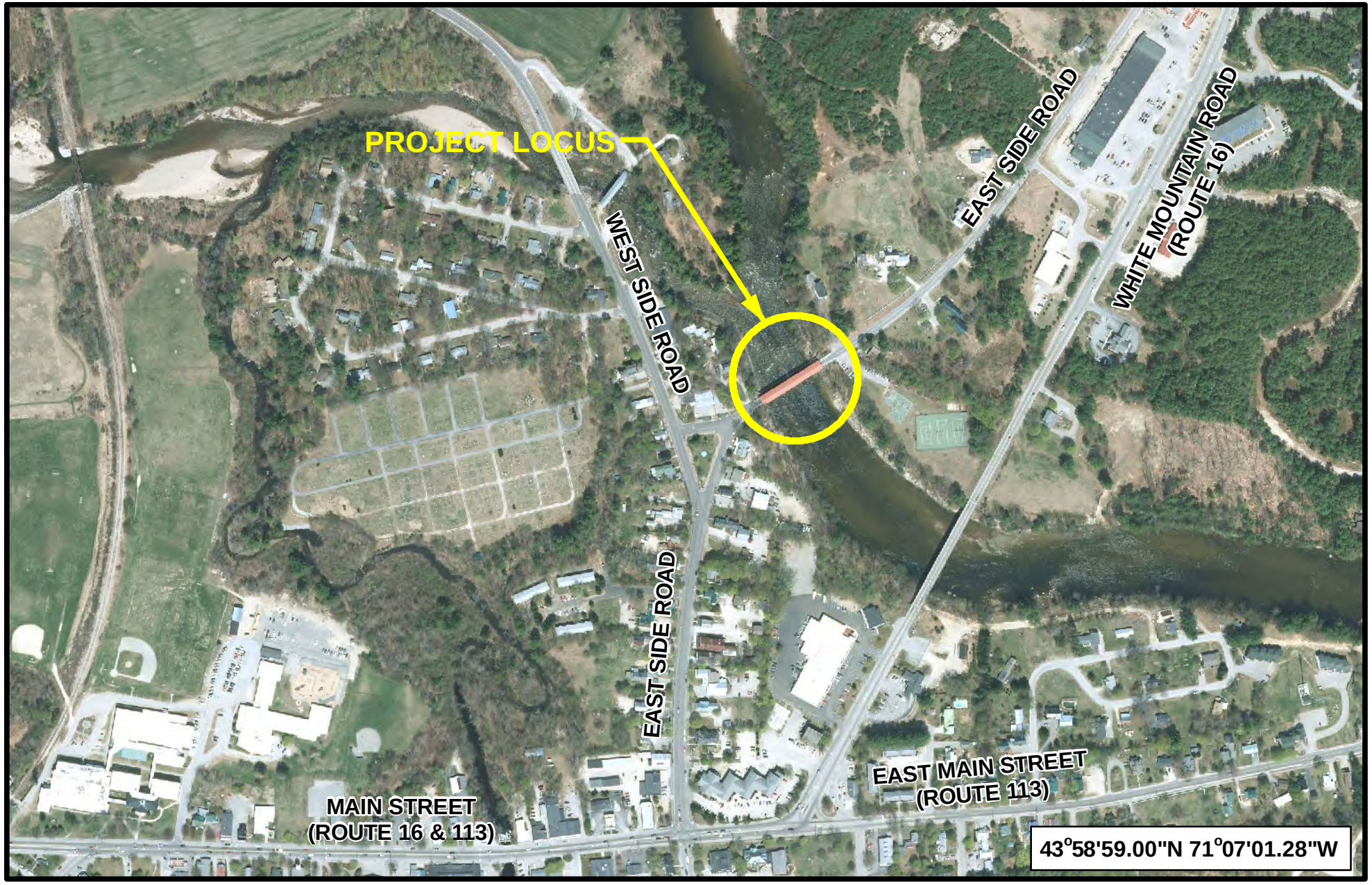
15. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200
☐ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking)	**10,826** sq. ft.	X	$0.20 =	$ **2,165.20**
Temporary (seasonal) docking structure:	sq. ft.	X	$1.00 =	$
Permanent docking structure:	sq. ft.	X	$2.00 =	$
Projects proposing shoreline structures (including docks) add $200 =				$
Total =				$
The Application Fee is the above calculated Total or $200, whichever is greater =				$ **2,165.20**

Section 2

Project Locus Maps



TOWN OF CONWAY, NH

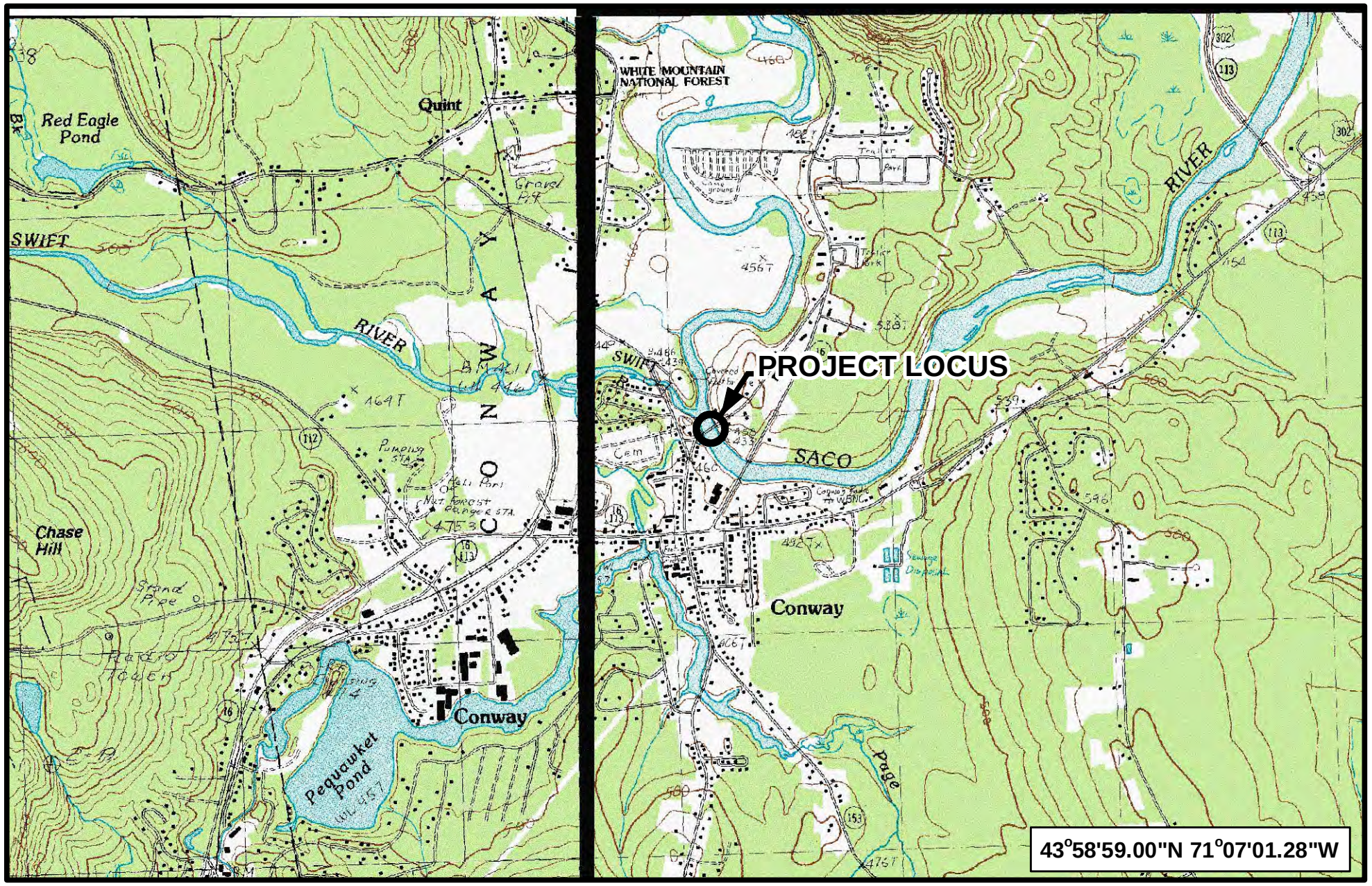
0 125 250 500 750 1,000
FT

N

EAST SIDE ROAD OVER
THE SACO RIVER
NH Project No. 25103

CHA
design/construction solutions

Figure 1. Locus Map



TOWN OF CONWAY, NH

EAST SIDE ROAD OVER
THE SACO RIVER
NH Project No. 25103

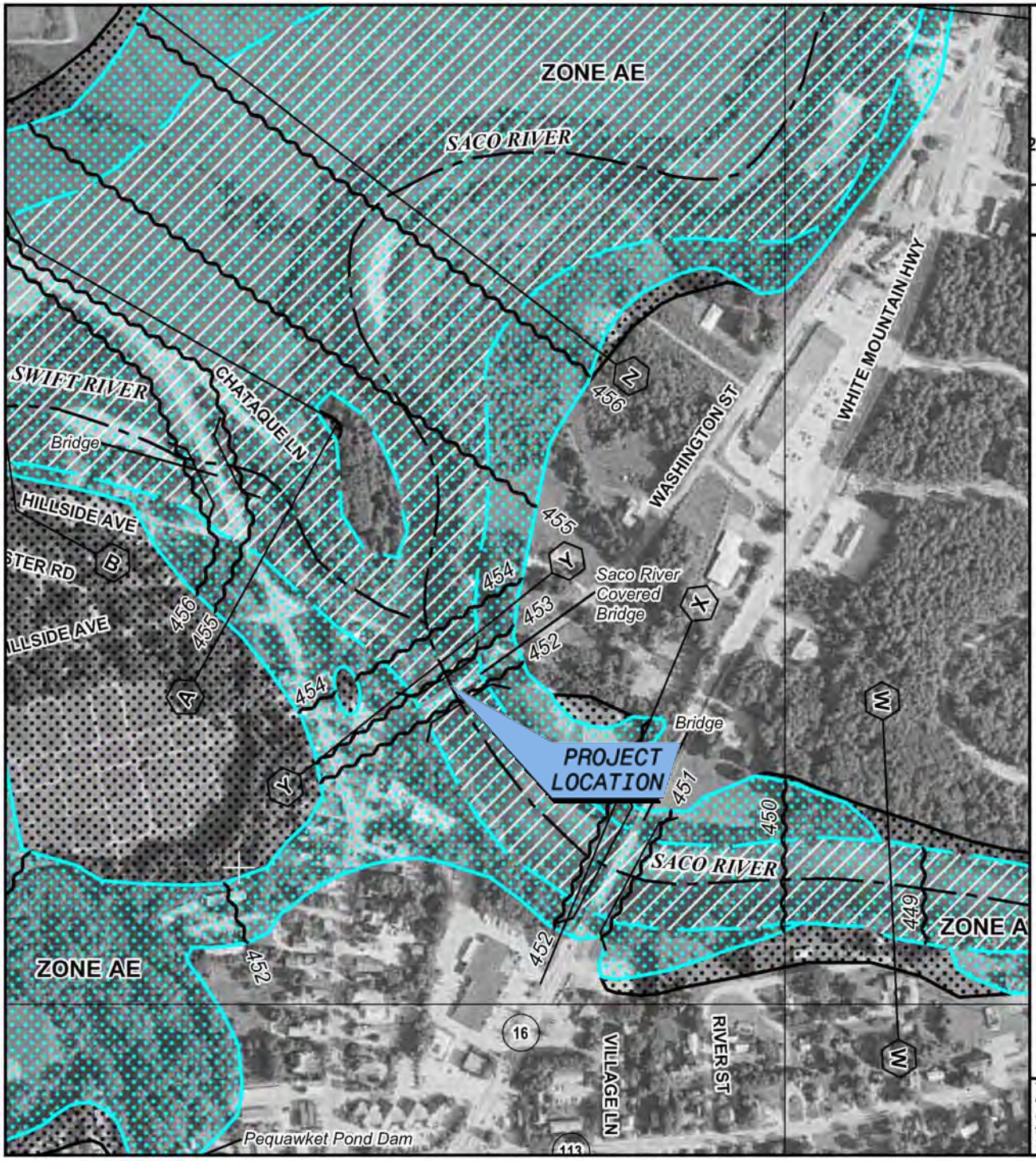
0 550 1,100 2,200 3,300 4,400

FT

N

design/construction solutions

Figure 2. USGS Topographic Map



MAP SCALE 1" = 500'

250 0 500 1000

FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0351D

FIRM

FLOOD INSURANCE RATE MAP

CARROLL COUNTY, NEW HAMPSHIRE (ALL JURISDICTIONS)

PANEL 351 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CONWAY, TOWN OF	330011	0351	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
33003C0351D

EFFECTIVE DATE
MARCH 19, 2013

Federal Emergency Management Agency

Section 3

NHDES Wetlands Permit Application
Attachment A – 20 Questions

WETLANDS PERMIT APPLICATION – ATTACHMENT A
MINOR AND MAJOR - 20 QUESTIONS

Land Resources Management

Wetlands Bureau

Check the Status of your application: www.des.nh.gov/onestop

RSA/ Rule: RSA 482-A, Env-Wt 100-900

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

The New Hampshire Department of Transportation (NHDOT) is proposing to install scour countermeasure protection for the proposed East Side Road Covered Bridge located at East Side Road in the Town of Conway, Carroll County, New Hampshire (Latitude 45°58'59.00" N; Longitude 071°07'01.28" W). The project involves the existing East Side Road two-lane covered bridge over the Saco River (See Locus Maps & Site Plans, Sections 2, 18 & 19). This 2-span historic covered bridge is currently coded scour critical and considered vulnerable to erosion/scour during severe flood events. The FHWA mandated Plan of Action (POA) proposed by the NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and central pier. Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill, is individual angular stone approximately 2-3' average diameter which is proposed at selected bank locations on both sides of the river. The second is Partially Grouted Riprap (PGR), which is proposed to be installed in front of both abutments and around the pier. On the downstream/southwest side of the bridge, temporary access is proposed from private land extending upstream along the bank to the right/west abutment. On the east/left side of the river, access to the east abutment/bank will occur from the up-stream, northeast/left side. A temporary causeway is also proposed from this area extending out into the river to the upstream end of the pier to allow equipment and materials access to this area. The specific height of this temporary causeway is proposed to be roughly two (2) feet above the average flow of the river for the months of August - October. No wetland resource areas occur within the project along the banks of the river, excepting the river, and the entire project occurs in a FEMA 100-year floodplain.

2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.

1) The "no-build" alternative is not an option. The bridge has been designated as scour critical and the potential collapse of the bridge into the river due to the failure of the abutments or central pier could create hazards in terms of debris and potential blockage of the channel, erosion of the river banks and/or destruction of infrastructure downstream. 2) The replacement of the existing bridge/foundations in their entirety is exceedingly expensive and will create greater impacts to the river channel/banks with increased scope and time of construction, not to mention detours for the Conway area residents. 3) Alternative access was also considered. An alternative access road to the central pier from the southwest/downstream side of the East Side Road Covered Bridge was considered during the initial design of the project. However, with the deeper water, slightly wider channel and greater passage of flow on the right side (western channel) of the central pier than the left side (eastern channel), construction of the temporary access road from this location could have greater impacts to the environment (larger footprint) and greater cost and materials to create the temporary road. On the east bank, access from the northeast side of the bridge to the central pier and east/left abutment will avoid temporary use of Davis Park, a municipal park located on the southeast side of the bridge (See Item #4 below). 4) A barge in lieu of a causeway was also considered for transporting materials to the central pier. However, the shallow river depth during low flows, and increased velocities during higher flows precluded this option. 5) The preferred alternative has been designed to protect the right/left abutments and central pier from scour damage and bank erosion with the least amount of environmental impact. Access to the central pier via the temporary stone causeway will impact the river bed and banks in the short-term during construction. However, the channel bottom and river banks will be restored to existing grades and the banks will be revegetated with indigenous root stock and seeded (See Section 5, Bank Restoration & Revegetation Mitigation Report) to return them essentially pre-existing conditions following removal of access roads.

3. The type and classification of the wetlands involved.

The Saco River is classified as a Riverine, Lower Perennial, Unconsolidated Bottom, Cobble-Gravel and Sand resource area with a permanently flooded water regime (R2UB1/2H) according to USFWS National Wetland Inventory (NWI) maps. Ecological communities described by the New Hampshire Wildlife Habitat Land Cover (2015) Maps (New Hampshire Wildlife Action Plan Maps (Base Map - Granit, 2015) and Natural Communities of New Hampshire, Second Edition (Sperduto and Nichols) identify vegetated river banks/floodplain areas as Red Maple Floodplain Forest (S2S3) and Cobble-Sand River Channel (S3S4). Vegetated, upland riparian zones adjacent to the river are characterized as narrow bands of mixed deciduous-coniferous forests with vegetation in the tree, sapling, shrub and herbaceous layers, although the understories are sparsely to moderately vegetated. No areas within the project limits qualify as wetlands according to the U. S. Army Corps of Engineers (ACOE) three-factor approach using indicatiors of hydrophytic vegetationm, hydric soils and hydrology.

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

The Saco River upstream and downstream of the project site is classified as a R2UB1/2H riverine resource as indentified above in Item #3. The Swift River, that joins the Saco River just upstream/north of the East Side Road Covered Brige, is also classified as a R2UB1/2H riverine resource. A small, intermittent stream is located on the west bank of the Saco River immediately downstream of the bridge. The stream flows from Pequawket Pond, located west of East Side Road, and is conveyed via a box culvert (4' x 5') beneath the road and joins the Saco River from a southwesterly direction. It is not designated on NWI maps but is classified as a R4UB2J waterbody. No other areas qualify as wetlands according to ACOE standards within or adjacent to the project vicinity.

Tree clearing is proposed on the river banks immediately adjacent to the bridge where the scour protection countermeasures are proposed as well as associated with the temporary access roads on the southwest and northeast quadrants. Clearing will include approximately seven (7) trees (red maple (Acer rubrum), northern red oak (Quercus rubra) and slippery elm (Ulmus rubra)) on the east bank and approximately 12 trees (black locust (Robinia pseudoacacia), green ash (Fraxinus pennsylvanica), red maple, silver maple (Acer saccharinum), slippery elm, and yellow birch (Betula alleghaniensis)) on the west bank. Continued in Add. Comments.

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

The Saco River and adjacent Swift River are major waterbodies with associated FEMA 100-year flood plains. The Saco River has a watershed upstream of the project area, measured from a USGS gauge station in Conway, of approximately 385 square miles, and is classified as one of 16 Level 8 Hydrologic Units Water Basins for the state of New Hampshire. Riverine systems in this region of New Hampshire occur frequently across the landscape and are integral for recreational activities such as boating and fishing. No rare wetland communities/surface waters occur in or adjacent to the project area.

6. The surface area of the wetlands that will be impacted.

Permanent impacts, as identified on the Wetlands Permit Application (Section 1) and Site Plans (Sections 18 & 19) include approximately 3,986 square feet (s.f.) of permanent impacts to the Saco River channel at/below ordinary high water (OWH) with the A & B Stone Fill and PGR associated with the left and right abutments and central pier. Temporary impacts to the river channel associated with temporary work space, best management practice (BMP) erosion and sediment control (ESC) measures/coffer dams and access roads include an additional 4,689 s.f. Temporary impacts to the small, intermittent stream on the west bank south of the bridge that is proposed to be culverted during the construction of the temporary gravel access road will include approximately 150 s.f. as well. Temporary impacts will be restored essentially to pre-existing conditions and river banks will be revegetated with indigenous species within the resource areas. Bank impacts between OHW and Top of Bank (TOB) will result in approximately 751 s.f. of permanent impact with roughly 1,400 s.f. of temporary impacts. As previously indicated, areas subject to temporary disturbance will be restored predominantly to pre-existing conditions and revegetated in-kind.

7. The impact on plants, fish and wildlife including, but not limited to:
   a. Rare, special concern species;
   b. State and federally listed threatened and endangered species;
   c. Species at the extremities of their ranges;
   d. Migratory fish and wildlife;
   e. Exemplary natural communities identified by the DRED-NHB; and
   f. Vernal pools.

The proposed project is not likely to adversely affect species or critical habitat of species protected under the Endangered Species Act. Two Federally-listed species identified on the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) project planning tool (Consultation Code: 05E1NE00-2017-SLI-1143, dated March 22, 2017) (See Section 10) as potentially occurring within the project area include: 1) Northern Long-Eared Bat (Myotis septentrionalis), and 2) small whorled pogonia (Isotria medeoloides). There are no state-listed species in the project area according to the NH Natural Heritage Bureau Review (NHB 18-1616) dated 05/25/18 (See Section 8). A Threatened & Endangered Species Habitat Evaluation Narrative for the project is included in Section 12.

The Northern Long-Eared Bat (NLEB) is listed as federally threatened state-wide for New Hampshire. No roost/maternity trees or hibernacula are known to occur within 0.25 miles of the proposed action. In addition, during a site evaluation in May of 2017, no evidence of NLEB use of the bridge/structure or work zones required to provide access to the bridge were observed. The USFWS determined, in a letter dated the August 15, 2017 (attached), that the project conservation measures are consistent with the December 15, 2016 Programmatic Biological Opinion (BO) for NLEB and that "the scope of the program analyzed in the BO is not likely to jeopardize the continued existence of the NLEB".

No small whorled pogonia (Isotria medeoloides), listed as federally threatened state-wide for New Hampshire, were observed in the project area during the site evaluation in May of 2017. No adverse impacts area anticipated for this species or its critical habitat.

No other resources, such as migratory fish/wildlife, exemplary natural communities or vernal pools are documented in the area.

8. The impact of the proposed project on public commerce, navigation and recreation.

The Saco River is not listed as a navigable waterway under ACOE jurisdiction and is used primarily for recreation purposes and not considered a conduit for public commerce. Therefore, the proposed project does not require a US Coast Guard bridge permit pursuant to Section 9 of the Rivers and Harbors Act of 1899. The proposed work represents predominantly repair/replacement of existing scour protection measures and the instream work outside of the scour protection measure footprint is essentially only temporary. The project will have minimal impact to the public right of navigation and access to the central pier from the northeast bank will only temporarily block off the east side of the river, leaving the deeper, western channel open for recreational and public use during installation of proposed scour protection measures. Signage and other forms of safety protection, such as floating booms, will direct recreationalists around temporary work zones during construction.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The proposed scour protection countermeasures (See Item #1 & #6 above) will be installed along the right and left abutments and central pier above/below the water line and along the banks as portrayed on the Site Plans (See Sections 18 & 19). No work is proposed for the covered bridge or sub-structure. While the in-water riprap may be visible during low flow periods from the bridge and banks, it represents a repair/replacement and will not significantly add to the footprint of the abutments or central pier. Over time the new materials will attain coloration similar to the existing channel bottom and will blend into the surrounding environment. Riprap on the river banks at/above OHW is necessary for long-term scour protection and will more visible. However, similar to an existing riprap wall located on the northwest side of the bridge, indigenous trees, shrubs and herbaceous species may naturally revegetate these areas over time.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

As identified in Items #6 and #8 above, the proposed scour protection countermeasures (Stone Fill and PGR) will be installed along the right and left abutments and central pier above/below the water line and along the banks (See Sections 18 & 19). Current use of Davis Park, the Saco River and the general bridge area by the public involves sporadic foot traffic along the upland slopes/banks to access the river for recreational purposes such as swimming, sun bathing, boating and fishing. One area near the Davis Park central parking lot has been modified with railroad ties embedded into the slopes for erosion control purposes that also act as irregular steps. The stone riprap and PGR will not modify existing conditions appreciably and should not impede future foot traffic or river use over exiting conditions.

During construction, public access to work zones will be restricted for safety purposes, but this is only temporary and protection of the East Side Road Covered Bridge over the long-term is a priority and will be achieved through the proposed work. Minor delays in traffic for ingress/egress of construction equipment at temporary work entrances are anticipated, but police details will direct traffic and reduce disruption of use on roads accordingly.

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

The proposed project requires temporary access through private property on the northeast/left and southwest/right banks of the Saco River adjacent to the East Side Road Covered Bridge. However, no permanent land acquisition is required for this access. This can be seen on the proposed Site Plans for the project (See Sections 18 & 19). Installation of scour protection counter-measures will stabilize banks and the channel adjacent to the bridge and prevent future bank erosion and loss of property.

The proposed project abuts Davis Park, located on the southeast side of the East Side Road Covered Bridge, that is protected under Section 6(f) of the Land and Water Conservation Act of 1965. However, the work does not require the permanent or temporary acquisition of any land associated with the park. Access to the left/east abutment and central pier of the bridge to install scour protection countermeasures is proposed from the northeastern/left bank on the north side of East Side Road. See Items #6 and #10 for additional discussion on public/private access.

12. The benefit of a project to the health, safety, and well being of the general public.

The bridge has been designated as scour critical and the protection of the existing foundations with countermeasures is necessary over the long-term. The potential collapse of the bridge into the river due to the failure of the abutments or central pier may create potentially significant safety and environmental issues due to debris and potential blockage of the channel/erosion of the river banks and/or destruction of infrastructure downstream.

The proposed project will not result in major traffic disruptions because access to the roadway will not be changed or significantly impacted. Temporary impacts to traffic patterns during the construction phase of the project associated with vehicle access to/ from the site area is expected to be minor (See Item #10 above). This can be seen on the proposed Site Plans (See Sections 18 & 19) for the project

13. The impact of a proposed project on quantity or quality of surface and groundwater. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

The Saco River in the Town of Conway was identified on the NHDES Draft 2016 Section 303(d) Surface Water Quality List for New Hampshire as a Category 5 impaired surface water for lead, aluminum and pH. Total Maximum Daily Load (TMDL) limits for the Saco River for the identified impairments are required but have not yet been established. The source of the pollutants is "unknown" and the TMDL limit requirements for this segment of the Saco River are designated as a low priority. However, the proposed installation of scour protection countermeasures along the existing bridge abutments/central pier will result in only temporary disturbance and are not anticipated to increase levels of lead, aluminum and/or pH significantly during or post-construction or require TMDL calculations for the project.

No changes to the long-term quantity and quality of surface and groundwater resources are anticipated following construction. **Continued in additional space in Section #15.**

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

The proposed scour protection countermeasure project temporarily encroaches on the regulatory floodway of the Saco River. A temporary causeway is proposed from the upstream, northeast bank of the river extending out into the channel to the upstream end of the central pier to provide access for equipment and materials for scour protection measure improvements. The causeway will be removed once work at the central pier is completed. Following installation, the countermeasures will not result in more than a nominal increase in base flood elevation, partially due to the fact that long-term scour/erosion has removed much of the original material. A hydraulic model was prepared to study the impacts of the proposed action, and it was determined that the effects of the fill on the floodway are negligible. No coordination with FEMA through the Conditional Letter of Map Revision process is required prior to the start of the project.

No redirection/deflection of channel flows are anticipated as a result of the proposed scour countermeasures, and following installation, the countermeasures should protect against long-term erosion and downstream sedimentation.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

As identified in Item #14 above, the scour protection countermeasures are anticipated to result in only a negligible increase in base flood elevation, and no redirection/deflection of channel flows are anticipated as a result of the proposed installation.

Continued from Section #13.

Proposed coffer dams and turbidity barrier curtains around the proposed limits of in-water work (See Sections 18 & 19, Site Plans) will protect against silt-laden discharges to, and preserve water quality of, the Saco River. Water diversion methods (temporary causeway) will reduce the flow velocities in the vicinity of the central pier and turbidity curtains will isolate the work area from the river. Excavation, channel bed preparation, stone placement and grouting are all planned to be completed in a non-dewatered environment. During grouting, the contractor will be required to monitor surface water outside the contained work area for any pH increases. If pH measurements exceed allowable thresholds, then the grouting operations will be suspended or modified until pH levels fall within an acceptable range.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

Scour protection countermeasures proposed for the Saco River are needed due to the scour-critcal designation of the East Side Road Covered Bridge. Some of the material proposed as fill will replace material that has eroded from the abutments and central pier over time. The project represents necessary infrastructure repair/maintenance, and work in the state-designated river/floodway qualifies on the basis of the public need.

No vegetated wetland resource areas occur within the project area along the banks of the river, with the exception of the river itself. Tree clearing is proposed on the upland/riparian river banks immediately adjacent to the bridge where the scour protection countermeasures are proposed as well as associated with the temporary access roads on the southwest and northeast quadrants (See Item #4 above). Future public and/or private projects upstream/downstream of the East Side Road Covered Bridge with the potential to impact wetland resource areas would need to undergo NHDES review and approval, and cumulative impacts would be considered and could be minimized/mitigated during the evaluation process.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

As identified in Item #4 above, no vegetated wetland resource areas occur within the project area along the banks of the river, with the exception of the river itself. Due to the relatively small footprint of the work, much of which occurs within the existing scour countermeasure protection area, and temporary access roads within the channel and on the banks that will be restored to pre-exising conditions, overall impacts will be minimized to extent feasible. Futhermore, installation of the scour countermeasures will stablize the bridge/adjaent areas and reduce scour/downstream sedimentation over the long-term. The function of the river bed and banks as fishery/wildlife habitat and for floodwater conveyance/storage will not change significently following construction.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

The proposed action will not impact any historic places/properties listed on the National Register of Historic Places pursuant to Section 106 of the National Historic Preservation Act (See Section 13 – NHDOT "No Adverse Effect Memo" dated 04/26/18).

Phase IA and IB archeological investigations were conducted by Independent Archeological Consulting, Inc. (IAC) along both the right/west bank and left/east bank of the Saco River to determine the presence/ absence of ancient Native American cultural deposits (See Section 13). Investigations in the southwestern/right quadrant yielded no artifacts or features and no additional archeological surveys were recommended for that quadrant. Soil testing in Davis Park on the southeastern/left quadrant of the river resulted in the discovery of 20 lithic artifacts. No work associated with the project is currently proposed in Davis Park and access to the Saco River is proposed from the northeastern/left bank. However, IAC recommends contractors avoid any ground disturbance within the limits of Davis Park. If work is proposed, such as staging or storage of materials, it should occur in the areas of negative test holes, as indicated in the attached consultation letter. Physical barrier fencing should be placed around known sites to ensure avoidance during proposed work. Should ground disturbance be required within the limits of known archeological sites, Phase II testing to recover artifacts and/or document feature should occur prior to construction/use of the site.

19. The impact upon the value of areas named in acts of Congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

The proposed action requires scour protection countermeasures to be installed within the Saco River (See Item #1 above). The Saco River is not designated or listed as a component of the National System of Wild and Scenic Rivers. However, it is designated as a "rural" river with a ¼ mile buffer on the State Map of Designated Rivers in New Hampshire. A copy of the Dredge and Fill Permit Application will be submitted to the NHDES Rivers Program Coordinator (Tracie Sales) for review and approval during the permitting review process.

20. The degree to which a project redirects water from one watershed to another.

As identified in Items #14 & #15 above, the proposed scour protection countermeasure project temporarily encroaches on the regulatory floodway of the Saco River. However, following installation, the countermeasures will not result in more than a nominal increase in base flood elevation, partially due to the fact that long-term scour has removed much of the original material. No redirection/deflection of channel flows are anticipated as a result of the proposed scour countermeasures since they will have a relatively low profile, and following installation, the countermeasures should protect against long-term erosion and downstream sedimentation. Futhermore, because the project is centrally located within the Saco River basin, redirection of water between watersheds is unlikely.

Additional comments

4. Continued discussion…….

Upland forests on slopes adjacent to the Saco River are classified as mixed deciduous-coniferous communities (Hemlock-hardwood-Pine forest). Single-family residences occur along East Side Road on both the east and west banks of the river, and Davis Park, a recreational town park with tennis courts, basketball courts and maintained grass/open space, is present on the downstream/southeast side of the bridge.

On the downstream/southwest side of the bridge, a temporary access is proposed. A temporary gravel road would be constructed on private property and would extend upstream along the bank to the right/west abutment as identified on the site plans (See Sections 18 & 19). The small, intermittent stream on the west bank south of the bridge is proposed to be culverted (36-inch HDPE) during the construction of the temporary gravel access road. The area will be restored/revegetated to pre-existing conditions following completion of the project. Root-stock will be planted as part of the Bank Restoration & Revegetation Mitigation Report following completion of the project (See Section 5).

On the east/left side of the river, access to the east abutment/bank will occur from the upstream, northeast side. A temporary gravel causeway is also proposed from this area extending out into the river to the upstream end of the central pier to allow equipment and materials access to this area. The area will be restored/revegetated to pre-existing conditions following construction.

Section 4

Natural Resource Agency Coordination Meeting Minutes

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: May 20, 2015
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Ron Crickard
Mark Hemmerlien
Jason Savage
David Scott
Tobey Reynolds
Joshua Lafond
Kathleen Corliss
Jon Hebert
Mike Dugas
Rebecca Martin
Jason Tremblay
Colleen White
Jim Kirouac
Michael Licciardi
Steve Glines
Ron Kleiner

Federal Highway Administration
Jamie Sikora

Army Corps of Engineers
Michael Hicks
Richard Kristoff

NHDES
Gino Infascelli
Lori Sommer

NH Fish & Game
Carol Henderson

NH Natural Heritage Bureau
Amy Lamb

Strafford RPC
Colin Lentz

PIM-INC
Todd Kilburn
Jerry Kruegler

CHA
William Horne
Robert Faulkner

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

NOTES ON CONFERENCE:

Finalization of April 15th 2015 Meeting Minutes

Matt Urban indicated that the he had not received any comments for the April 15th meeting, he indicated he would finalize the minutes a couple of days after this meeting provided there are no additional comments and/or objections at this time. Subsequent to the meeting no additional comments were received and the minutes were finalized.

Central Turnpike Drainage Rehabilitation Project, 29024, Non-Federal

Sam Newsom presented the project details. The project proposes repairs to outlet/inlet pipes, culvert headwalls and placement of stone fill for scour protection at 12 culverts of varying types, sizes and lengths on the F.E. Everett Turnpike, I-293 and I-93 in Nashua, Bedford, Hooksett, Bow and Concord. There will also be 5 slope pipe replacements and miscellaneous incidental work. S. Newsom showed aerial maps of each of the locations with the wetlands delineated on the maps and discussed each proposed activity at each of the mile markers where work is proposed to be conducted. He explained that this project includes all of the pipes that did not conform to the Routine Roadway Maintenance Permitting guidelines and will require a Dredge and Fill Wetlands Permit. S. Newsom explained that drainage infrastructure was built between the 1950's and 1990's and has experienced deterioration over its lifetime. The drainage is in need of maintenance and repairs to ensure that the pipes remain functional and prevent erosion of the roadway embankments and watercourses. The proposed stone lining at the drainage outlets and along waterways will stabilize the channels and prevent transport of sediments downstream. S. Newsom described and showed photographs of some of the damage at various project locations, including slope pipe corrosion, deteriorated and disjointed pipe sections, significant cracking/break up of stone sections of headwalls, and headwall that are undermined or have separated from the adjoining pipe. S. Newsom detailed the proposed repairs, including:

- MM 6 – Slip Line twin RCP pipes and add stone protection
- MM 7.8 twin CMP (2 locations) require slip line or cutting out bottoms of the pipes and pouring concrete. Slip lining of the remaining 2 pipes
- MM 19.3 Inlet stone protection behind headwall and outlet headwall repair/replacement with stone protection.
- MM 4.6 Inlet and outlet repair with stone protection
- MM 30.2 Both pipes need inlet headwall repair/replacement and stone protection
- MM 30.8 Outlet needs the last 2 section of pipes reset, headwall replacement and stone protection
- MM 36.3 Inlet needs 1 section of new pipe, headwall and slope stabilization

The proposed repairs will extend the life the existing infrastructure and avoid more costly repairs in the future. S. Newsom explained that there will be less than 1 acre of impacts and there will be minimal tree clearing for access to the project areas. The established channels will be maintained. The group discussed beaver activity at the pipe in Concord (MM 36.3). Carol Henderson

recommended considering a beaver pipe (box within a pipe) and suggested contacting Rob Calvert for more information. C. Henderson asked if the hydrology will be changing when pipes are slip-lined and David Smith explained that due to the smoother plastic lining, the capacity of the pipes will not be reduced.

Rebecca Martin explained that the NHB review did result in several rare species that have been identified in or near proposed project areas. Kim Tuttle has been contacted and has requested that John Magee consider fish passage. The size of the watershed of the drainage systems have been calculated and shared with John Magee and Kim Tuttle.

S. Newsom described the timeline for the project, including sending the Wetland Permit to the Bureau of Environment by the end of May, advertising October 6, 2015, and project completion on September 30, 2016.

Matt Urban asked if mitigation will be necessary for the project and Gino Infascelli commented that project plans will be needed to ascertain what the impacts will be. Details and USGS maps of each specific area will be needed. G. Infascelli explained that culverts with Tier 2 streams can be slip-lined, but Tier 3 cannot. Lori Sommer stated that mitigation can be assessed when the project impacts are shown on plans. G. Infascelli made the general comment that it seems that rip rap is excessive at some project locations and to only use what is warranted by field conditions.
S. Newsom shared pictures with C. Henderson at the end of the presentation.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Bethlehem, 26763, X-A004(296)

Joshua Lafond provided an overview of the project. The project includes replacement of the culvert that passes under Main Street (Route 302) in Bethlehem east of Route 142 to resolve ongoing issues with maintenance of the existing culvert and to meet the capacity of the water flowing through the culvert. District has experienced difficulties maintaining the existing culvert due to age and instability. A sink hole developed over the culvert in the summer of 2013 due to decay of the structure and one of the drop inlets into the culvert collapsed in 2014 and needed to be replaced. The stream passing through the culvert is an unnamed tributary to Barret Brook. The culvert inlet is adjacent the Bethlehem visitor center and historical society building. The outlet is behind the post office and the Maia Papaya restaurant.

The existing culvert is 170 feet long and is a combination of 3 different construction methods. The original stone masonry culvert is the middle section of the culvert, passing under Route 302 (Main Street). The age of this section is unknown, but a plan from 1920 shows this section as existing. At some point, inlet and outlet extensions were added onto the culvert. The inlet of the culvert is a concrete box and the outlet is a steel arch pipe. No plans have been located for the associated extensions. J. Lafond explained that the inlet of the pipe has two retaining walls which are in poor condition and that one of the retaining walls has begun to fall into the stream. In addition, J. Lafond showed a photograph that demonstrated that the outlet of the culvert is perched and the steel has corroded significantly. In the pipe there are issues with separation of sections of the pipe.

J. Lafond described the proposed project to replace the existing culvert and remove the retaining walls at the inlet and extend the culvert at the outlet. Impacts to the stream and banks are anticipated. At the inlet the estimated area of impact would be around 445 square feet to remove the walls and create a natural slope to the stream on each side. J. Lafond described that the outlet would be extended approximately 20 feet due to the steep slope and that the approximate impacted area would be 970 square feet.

J. Lafond presented the alternatives that were considered. The first and least expensive option would be to rehabilitate the existing culvert. However, rehabilitation would not address the outlet perch and Jim Kirouac stated that the current pipe does not meet the capacity of the water flow. The second alternative was the recommendation of the stream crossing assessment conducted by the Bureau of Environment, a 21 foot 3 sided structure. This alternative has constructability issues due to potential impacts to surrounding potentially historic buildings and Right of Way. The third alternative is a 8 foot wide by 8 foot tall box with 2 feet of embedment that would meet culvert design requirements and capacity for a 50 year storm. The preferred alternative is a 12 foot wide by 8 foot tall box with 2 feet of embedment, which would be designed to meet capacity for a 100 year storm and bridge design requirements, as structures with spans greater than 10' are classified as bridges and sized accordingly. This is the preferred alternative because it provides greater resiliency. J. Lafond showed a depiction of the 21 foot span and impacts to adjacent structures to illustrate the constructability issues.

J. Lafond and J. Kirouac provided a description of the trunk lines that currently feed stormwater from the roadway into the culvert. A sink hole developed this spring over the trunk line just west of the culvert and is in need of repair. The intent with this project is to only address the trunk line issues immediately adjacent to the culvert, as the entire road and drainage are in need of rehabilitation at a future date. J. Kirouac explained that the trunk lines are metal or concrete where they attach to the culvert, but are clay further east and west of the project area. J. Lafond also mentioned that the drop inlet that feeds directly into the culvert will be redesigned to not drop directly into the culvert.

Carol Henderson asked for more information about the construction of the replacement box culvert. J. Kirouac described that the box would likely be pre-cast concrete sections with rubber gaskets.

Lori Sommer and Matt Urban explained that there will be mitigation required for impacts to the stream from extension of the outlet of the culvert. J. Kirouac explained that the intent behind the extension is to attempt to achieve 2:1 slopes, which would be more stable than the existing 1:1 slopes. Gino Infascelli warned that the parking lots of the adjacent businesses may extend when the culvert extends. He recommended controlling project creep as part of the Right of Way process. The group seemed supportive of the preferred alternative.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Stewartstown, 16312, X-0001(240)

Rebecca Martin provided a brief overview of the project and showed photographs of the bridge over Bishop Brook. Michael Licciardi explained that the bridge on Route 145 over Bishop Brook is the 6th priority bridge on the State's Red List. The two lane bridge (121/114) is proposed for replacement due to the fact that the bridge deck is in poor condition and the substructure is in serious condition. The new bridge span is proposed to be 50 feet with Northeast Extreme Tee (NEXT) beams for the superstructure. The length is based on the stream crossing assessment conducted by the Bureau of Environment and the orientation of the stream channel to the roadway (skewed). M. Licciardi stated that the bridge will be 27 feet wide.

M. Licciardi described that the vertical and horizontal alignment of the new bridge will be approximately the same as the existing. There will be 360 feet of road reconstruction (220 feet to the south of the bridge and 140 feet to the north). The wetland impacts have been estimated to be 3,800 square feet of permanent impacts and 3,200 feet of temporary impacts. Mark Hemmerlein stated that the brook is an Outstanding Resource Water.

R. Martin explained that the NHB review resulted in a result for historic records of two rare plants. The area will be surveyed when the plants are flowering, in August. Amy Lamb recommended flagging the area, if any of the plants are found.

Mike Hicks inquired about the historic status of the bridge. R. Martin explained that the bridge was surveyed and has been determined not to be eligible for the National Register. The adjacent Farm property is eligible and slope easements will be discussed with the property owners.

Lori Sommer asked for a description of the armoring. M. Licciardi showed the areas on the plans where armoring will be installed. The stone is intended to extend from the abutments on both sides. L. Sommer said that mitigation will not be required given that the structure is designed to meet the stream crossing rules.

The project is expected to advertise in January 2016 with construction in spring and summer of 2016. Jason Tremblay stated that the wetland permit is expected to be submitted this summer.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Dixville, 29776, Non-Federal

Jon Hebert provided a description of the project and purpose for the action. J. Hebert explained that the pedestrian culvert passing under NH Route 26 is an 84 inch CMP pedestrian passage that was constructed in 1978. The passage provides access to the recreational trail system and is utilized by snowmobiles. The current passage is not large enough to accommodate all users. The proposed replacement is a 3 sided structure around 20 feet wide that will accommodate passage of trail groomers, horses, and other users.

To replace the pedestrian culvert a temporary detour of NH Route 26 to include the area south of the roadway will be necessary. Two-way traffic is intended to be maintained through the project

area. Once the detour is built, traffic will be detoured to the south and the northern portion of the structure will be constructed. In the second phase of the project, the traffic will be routed to the north and the southern half of the structure will be constructed. J. Hebert commented that the roadway embankments in the area are quite high, almost 25 feet.

J. Hebert told the group that rehabilitating the existing culvert is not a viable option due to the fact that the current culvert is not large enough to meet the needs of the users of the passage.
J. Hebert explained that there are 3 culvert crossings for drainage existing in the project area. One of the culverts will need to be extended to accommodate construction of the new passage. The drainage is sheet flow off the roadway and will not be changed in any significant way by the project.

J. Hebert explained that in order to access the northern portion of the project, a temporary access/haul road may be constructed from west of the project area. There is a significant amount of material that will need to be removed to accommodate construction and the road bank in this area is very steep. The majority of the work will be within the existing Right of Way. J. Hebert commented that the Balsalms Resort is amenable to use of their property, if necessary, as they are in favor of the project.

The project will impact wetlands. Approximately 7,600 square feet of total impacts are anticipated. Matt Urban explained that most of the wetlands in the area are emergent ditch line wetlands. On the north side of the road way wetlands are scrub-shrub wetlands. Rebecca Martin showed photographs of the area. Jon Hebert commented that the advertising date is in September, the wetland application is anticipated to be submitted within the next month, and construction is planned for summer 2016. ***Following the meeting the advertising date was moved ahead to sometime in August.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Carroll-Jefferson, 25066, X-A003(023)

Steve Glines introduced the Carrol-Jefferson project located on NH Route 115. S. Glines explained that the project has already been out to construction for some time already and that the job had to be suspended when they realized there were numerous pipes that needed to be addressed. S. Glines explained that one day while the paving equipment was going over an existing culvert the MTV (Material Transfer Vehicle) punched through the pavement due to excessive deterioration of a corrugated metal pipe. The culvert was not able to support the weight and collapsed.

Following the incident the Department inspected all of the pipes in the surrounding areas and identified 11 pipes that were in need of repairs. The Department immediately obtained a Routine Roadway Maintenance Activity Notification (RRMAN) for all of the pipes. However, S. Glines explained that there were many design constraints that the Department was up against, the most challenging being the depth of excavation required to replace these pipes. For that reason the Department has held off on replacing the pipes under the RRMAN and is pursuing the option to slip line 6 of the deepest pipes which would require a standard Dredge and Fill Application.

The proposed method of slip lining that is being considered is a UV lining. Todd Kilburn and Jerry Kruegler from PIM-Inc. briefly discussed the installation process and environmental benefits of using the UV lining method.

Matt Urban indicated that he believes all of the crossings would qualify as either Tier 1 and/or Tier 2 and that they should be able to be sliplined under the existing stream crossing rules. M.Urban asked if there were any concerns from the resource agencies moving forward with the slip lining option.

There were no concerns raised by the agencies.

M. Urban indicated to Lori and Gino that as refined delineations and impacts areas are determined for each pipe location we will be in communication regarding the need for mitigation or not.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Conway, 25103, X-A003(039)

Rob Faulkner briefly introduced the project describing the work as a countermeasure installation at the Conway Covered bridge (East Side road over the Saco River). CHA provided handouts including 1 preliminary plan sheet, site photographs and information on Partially Grouted Riprap (PGR). R. Faulkner indicated to the Agencies that this historic covered bridge received approval for bridge preservation funds to install PGR for scour protection around the bridge supports as part of a National Historic Covered Bridge Preservation application submitted by NHDOT.

R. Faulkner provided an overview of the project intended to protect this bridge from damage during a flood. This 2 span historic covered bridge is currently coded as scour critical and considered vulnerable to erosion/scour during severe flood events. The FHWA mandated Plan of Action (POA) proposed by NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and pier. Directly upstream of this bridge the Swift River flows into the Saco River.

Temporary access to all three substructure units is proposed from both sides of the river.
On the downstream west side, temporary access is proposed from a private land owner extending upstream along the bank to the west abutment. A temporary causeway is also proposed starting from this area extending out in the river to the upstream end of the pier to allow equipment and materials to the pier. The specific height of this temporary causeway is proposed to be roughly 2 feet above the average flow for the months of August, September, and October. This hydraulic design information (causeway elevation and opening) will be developed as the design efforts advance. The causeway will be removed after construction. No disturbance is planned for the privately owned upstream west bank.
On the east side of the river, access to the east abutment and upstream bank area will either be from the downstream bank area (via Town of Conway Local Park) or from the upstream private land owner.

NHDOT will contact the Town of Conway and inquire about a potential access location from the Town Park. In addition, CHA and NHDOT are investigating whether or not the local park is a Section 6(f) of 4(f) resource and the existing ROW information for the project is still pending. A Phase 1A Archeologic investigation performed by CHA's sub-consultant IAC, indicated that the areas around this bridge have the potential to contain Archeological resources. A Phase 1B investigation will be performed at all three potential access areas at this site.

Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill is individual angular stone approximately 2-3' average diameter which is proposed at selected bank areas on both sides of the river (see Plan sheet). The second is Partially Grouted Riprap (PGR), which is proposed to be installed in front of both abutments and around the pier. While PGR has not been used widely throughout the United States, it has been used extensively in Europe with great success. CHA discussed the advantages with PGR including minimizing the impact to the placement area by using less/smaller diameter material (riprap) which requires less channel excavation/preparation and partially grouting the voids between the stones with a special high slump concrete mix. The result is a larger but thinner interlocking stable layer of stones designed to resist flood velocities much higher than with un-grouted stone.

PGR was installed by NHDOT bridge maintenance forces in 2011 at a single span bridge in Holderness, NH. The result is a natural boulder laden channel bed that has gravel and sand deposits similar to a native stream bed. For the past 4 years the site is considered stable and the PGR countermeasure is performing well.

During the grouting process for the PGR countermeasure, a cofferdam and turbidity curtain barrier are proposed to isolate and contain the work area around the abutments from the river. Excavation, channel bed preparation, stone placement and grouting are all planned to be completed in a non-dewatered environment. During grouting the contractor will be required to monitor for any pH increases noted outside the contained work area. If pH measurements exceed allowable thresholds then the grouting operations will be suspended or modified until pH levels fall within an acceptable range.

At the pier there is a considerable amount of existing rounded 1-3' diameter stones visible in the site photos. CHA proposes to use much of the existing material and add supplemental stone to create a uniform layer of stone extending roughly 16 ft. out from the pier face around the perimeter of the pier. Water diversion methods (temporary causeway) will reduce the flow velocities and turbidity curtains will isolate the work area from the river. Excavation, channel bed preparation, stone placement and grouting are all planned to be completed in a non-dewatered environment. During grouting the contractor will be required to monitor for any pH increases noted outside the contained work area. If pH measurements exceed allowable thresholds then the grouting operations will be suspended or modified until pH levels fall within an acceptable range.
NHB initial screening indicated no occurrences for sensitive species (The NHB file number is 15 – 1681). It was noted during the meeting that the area was likely habitat for long eared bats. CHA will be contacting Susie van Oettingen from the USFWS to review this project related to potential impacts to the Long Eared Bat

Lori Sommer and Gino Infascelli (NHDES) provided an initial designation of "No Mitigation" and this project will be classified as "protection of existing infrastructure". G. Infascelli also indicated the Swift and Saco Rivers are considered a Designated river.

CHA will review the need for a NOI as the design development progresses. It was felt that the overall impact area would be less than 1 acre, however the project may include some dewatering / discharge. Pending results from the environmental screening as well as outstanding ROW information, CHA will be completing the NEPA documentation for the project.

It was noted that the project is expected to be advertised in January 2016 and that the construction duration is expected to be 4-6 weeks and intended to be completed during the seasonal low flow period between August and October.

Carol Henderson (NHFG) asked if A - Jacks were considered? CHA respond yes they were considered and dismissed based on additional bed preparation/disturbance efforts and the fact that the precast concrete A-Jacks would be visible above the normal water elevation and look less like a natural stream.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Cornish, 29024, Non-Federal

Rob Faulkner introduced this project as a countermeasure installation at the Cornish Toll Road Covered bridge (Bridge street) over the Connecticut River. CHA provided handouts including 1 preliminary plan sheet, site photographs and information on Partially Grouted Riprap (PGR). This historic covered bridge received approval for bridge preservation funds to install PGR for scour protection around the bridge supports as part of a National Historic Covered Bridge Preservation application submitted by NHDOT.

Rob Faulkner provided an overview of the project intended to protect this bridge from damage during a flood. This 2 span historic covered bridge is currently coded scour critical and considered vulnerable to erosion/scour during severe flood events. The FHWA mandated Plan of Action (POA) proposed by NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and pier. Temporary access to all three substructure units is proposed from using a state-owned parking area on the downstream southeast quadrant to construct a temporary riverbank bulkhead to accommodate marine barges and boats. Marine access is planned for the western abutment (Vermont side) as well as the pier. NHDOT will contact the Vermont Agency of Transportation and provide information of the proposed project. Separate permits (NH & VT) are anticipated. Coordination with the US Coast Guard is also planned for this project.

Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill is individual angular stone approximately 2-3' average diameter which is proposed at the pier and at selected bank areas on both sides of the river. At the pier the majority of the existing timber crib system is visible/exposed up to 1'upstream of the pier and along the western (Vermont) side of the pier. The timber crib along the east (NH) side of the pier is exposed up to 6' vertically and the

channel bed is significantly deeper in this area. Un-grouted stone is proposed to re-establish the existing riverbed and cover the timber cribbing system around the pier. Minimal excavation of sand deposits at the downstream end of the pier will be removed prior to placement of the Class A & B stone fill. Turbidity curtains will be installed and contain the work area prior to any excavation (bed preparation) of the downstream pier nose as shown on the plan sheet.

Partially Grouted Riprap (PGR) is proposed to be installed in front of both abutments. While PGR has not been used widely throughout the United States, it has been used extensively in Europe with great success. CHA discussed the advantages with PGR including minimizing the impact to the placement area by using less/smaller diameter material (riprap) which requires less channel excavation/preparation and partially grouting the voids between the stones with a special high slump concrete mix. The result is a larger but thinner interlocking stable layer of stones designed to resist flood velocities much higher than with un-grouted stone. PGR was installed by NHDOT bridge maintenance forces in 2011 at a single span bridge in Holderness, NH. The result is a natural boulder laden channel bed that has gravel and sand deposits similar to a native stream bed. For the past 4 years the site is considered stable and the PGR countermeasure is performing well.

During the grouting process for the PGR countermeasure, a cofferdam and turbidity curtain barrier are proposed to isolate and contain the work area around the abutments from the river. Excavation, channel bed preparation, stone placement and grouting are all planned to be completed in a non-dewatered environment. During grouting the contractor will be required to monitor for any pH increases noted outside the contained work area. If pH measurements exceed allowable thresholds then the grouting operations will be suspended or modified until pH levels fall within an acceptable range.

NHB initial screening indicated the presence of sensitive species; however, the specifics were not provided pending payment for the complete database search. It was noted during the meeting that the area was likely habitat for long eared bats and Mussels. The NHB file number has been requested. CHA will be contacting Susie van Ottingen from the USFWS to review this project related to potential impacts to the Long Eared Bat

Lori Sommer and Gino Infascelli provided an initial designation of “no Mitigation” and this project will be classified as “protection of existing infrastructure” G. Infascelli also indicated the Connecticut River is considered a designated river.

CHA will review the need for a NOI as the design development progresses. It was felt that the overall impact area would be less than 1 acre, however the project may include some dewatering / discharge. Pending results from the environmental screening as well as outstanding ROW information, CHA will be completing the NEPA documentation for the project.

It was noted that the project is expected to be advertised in January 2016 and that the construction duration is expected to be 4-6 weeks and intended to be completed during the seasonal low flow period between July and October.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Farmington, 16146, X-A001(152)

Ron Kleiner provided a brief project recap. The NHDOT will be replacing the bridge carrying NH Route 153 over the Cocheco River (Br No 096/140), just south of downtown Farmington. The 1924 structure is two spans, and 48 ft. in length. It will be replaced by a single span bridge, 71 ft. long. The bridge is adjacent to a USACE flood control levee.

It was recently brought to the DOT's attention that the Town of Farmington is required to maintain the levee. Currently, there are some gravel shoals not far upstream of the bridge. As part of the maintenance operations, it was suggested by the USACE that those shoals be dredged out of the river by the Town.

The DOT was asked by the Town if that work could be somehow include in the bridge work, or at the very least included in the permits for the project. The DOT was looking for input on the ramifications of adding that work to the existing efforts, from a permitting aspect.

During the discussion, the merit of the dredging was questioned. Several people wondered if removing the shoals would actually fix the problem, or if they would just come right back. There was also some opinion that simply widening the bridge, as proposed, would allow the shoals to wash away naturally.

If the dredging moves forward, it was noted that the Cocheco River is a Designated River. It was also pointed out that the work would require an NHB update. Beyond that, more details would be needed before specific impacts or mitigations could be discussed.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Section 5

Bank Restoration & Revegetation Mitigation Report

Bank Restoration & Revegetation Mitigation Report
East Side Road Covered Bridge

The NHDES, during the May 20, 2015 Natural Resources Agency Coordination Meeting for the project (See Section 4), provided an initial determination of "No Mitigation" for resource area impacts and designated the project as a "protection of existing infrastructure" However, the installation of scour protection countermeasures along the bridge abutments of both the east/left and west/right banks will permanently impact vegetation in these areas, approximately 112 feet. Therefore, revegetation of temporary work spaces with woody tree and shrub species is proposed to offset these losses.

Temporary work spaces on the east and west banks of the Saco River consist predominantly of temporary access roads (See Section 18 and 19, Wetland Impact and Erosion Control Plans). These temporary roads, necessary to transport scour protection countermeasures (NHDOT Class A & B Stone Fill and Partially Grouted Riprap (PGR)) to the east and west abutments and central pier, will be restored following installation of scour protection countermeasures. On the downstream/southwest side of the bridge, temporary access is proposed from private land extending upstream along the bank to the right/west abutment. On the east/left side of the river, access to the east abutment/bank will occur from the upstream, northeast/left side. A temporary causeway is also proposed within the channel (no revegetation required) from this area extending out into the river to the upstream end of the pier to allow equipment and materials access to this area. No wetland resources occur within the project area along the banks of the river, excepting the river itself.

Woody vegetation (trees & shrubs) will be cleared and perimeter erosion and sedimentation control (ESC) measures (filter socks/silt fences) will be installed at limits of work and material stockpile areas as applicable (See Section 15, Construction Sequence). Access roads will be graded as necessary to create safe working conditions and rock/gravel with underlying geotechnical fabric (mirafi, etc.) will be installed. A small, intermittent stream, located on the west bank of the Saco River immediately downstream of the bridge, is proposed to be culverted (36-inch HDPE) during the construction of the temporary gravel access road in this area. Cofferdams will be erected around the abutments/central pier, NHDOT Class A & B Stone Fill and PGR materials will be transported to the applicable abutments/piers, and the countermeasures will be constructed according to Site Plan designs.

Following installation of scour countermeasures, the temporary access roads will be removed. Where grading occurs, disturbed areas will be restored to pre-existing conditions/topography. Soils that are heavily disturbed (i.e. loss of topsoil/surface layers) will be amended with 6-12 inches of loamy material. On slopes steeper than 3:1 and in low-lying areas susceptible to erosion, bio-degradable erosion control blankets (jute, etc.) will be installed according to manufacturer's designs and/or the NHDES New Hampshire Stormwater Manual, Volume 3, Erosion and Sediment Controls (December 2008).

Tree and shrub root stock, as identified in Table 1 below, will be planted within temporarily disturbed areas between ordinary high water (OHW) and the top of bank (TOB) as well as adjacent uplands within the footprints of the access roads. Disturbed areas will be restored such that vegetation layers will simulate those of previously cleared areas/adjacent vegetated areas. Species

to be planted within the restoration areas will include trees species such as red maple (*Acer rubrum*), slippery elm (*Ulmus rubra*), green ash (*Fraxinus pennsylvanica*), yellow birch (*Betula alleghaniensis*) northern red oak (*Quercus rubra*), as well as various shrub species. All restoration areas will be supplemented with an erosion control seed mix to establish herbaceous ground cover. Table 1 represents the composition and abundance of species to be planted within the proposed restoration areas. Specifications for planting requirements are included on detail sheets (See Section 13, Site Plans).

Table 1. – Proposed Vegetation to be Planted in Riparian Zone Restoration Areas

Common Name	Latin Name	Status	Elevation/Planting Density/Comments	Number -Bank (West/East)
Trees				
red maple	*Acer rubrum*	FAC	430 – 445 feet; ≈ 1 plant /150 sf Provides food and cover for wildlife	3/2
slippery elm	*Ulmus rubra*	FAC	430 – 445 feet; ≈ 1 plant /150 sf Provides food and cover for wildlife	3/2
yellow birch	*Betula alleghaniensis*	FAC	430 – 445feet; ≈ 1 plant /150 sf Provides food and cover for wildlife	2/1
green ash	*Fraxinus pennsylvanica*	FACW	430 – 435 feet; ≈ 1 plant /150 sf Provides food and cover for wildlife	2/1
northern red oak	*Quercus rubra*	FACU	440 – 450+ feet; ≈ 1 plant /150 sf & uplands Provides food and cover for wildlife	5/5
Shrubs				
northern arrow-wood	*Viburnum dentatum*	FAC	430 – 445 feet; ≈ 1 plant /100 sf Provides food and cover for wildlife	3/2
black chokeberry	*Aronia melanocarpa*	FAC	430 – 445 feet; ≈ 1 plant /100 sf /Provides food and cover for wildlife	3/2
silky dogwood	*Cornus amomum*	FACW	430 – 440 feet; ≈ 1 plant /100 sf & along stream channel/ Provides food and cover for wildlife	3/2
highbush blueberry	*Vaccinium corymbosum*	FACW	430 – 440 feet; ≈ 1 plant /100 sf & along stream channel/ Provides food and cover for wildlife	3/2
Ground Cover				
NHDES Stormwater Manual, Vol. 3, Erosion/Sediment Controls (Dec. 2008)			Seed Mix – A or C (Sec.4.1)[1] or equivalent Species and indicator status variable	1.10 lbs/1,000 sf

[1] Section 4.1, Seed Mix -A or C: tall fescue (*Festuca arundinacea*), creeping red fescue, (*Festuca rubra*), birdsfoot trefoil (*Lotus corniculatus*) and/or redtop (*Agrostis alba*)

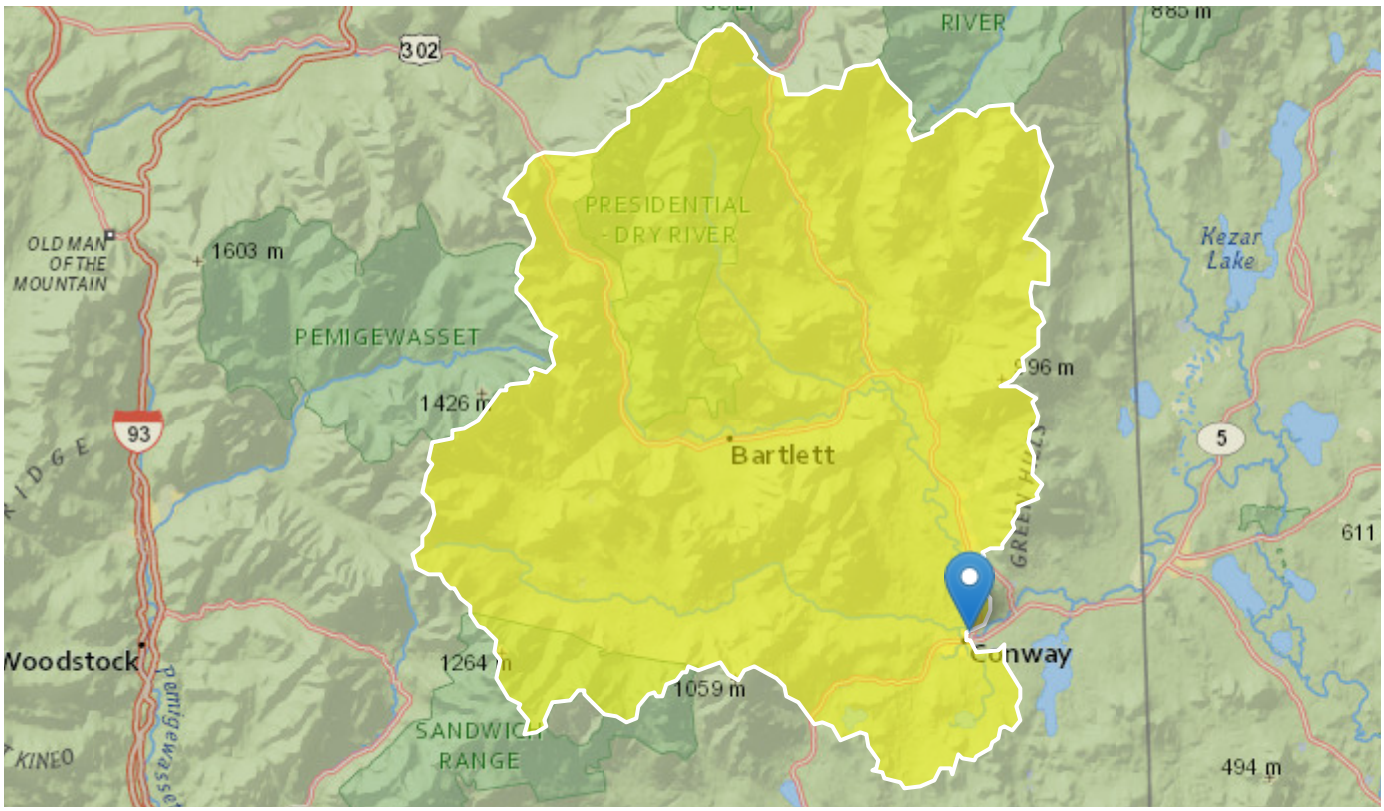
Preparation of a clean, weed free soil surface is necessary for optimal results. The mix may be applied to disturbed areas by hydro-seeding (incorporate mulch/tackifier and fertilizer (as permitted)), by mechanical spreader, or on small sites it can be spread by hand. Lightly rake, or roll to ensure proper soil-seed contact. Best results are obtained with a spring seeding. Late spring and summer seeding will benefit with a light mulching of clean, weed-free straw to conserve soil moisture. If conditions are drier than usual, watering may be required. Late fall and winter dormant seeding will require an increase in the seeding rate. If planted during the fall months, the seed mix will germinate the following spring. Vegetation monitoring will be performed for two years to assess vegetative coverage and site stability. Following the second annual inspection, the contractor will replace all plants that have not become established and re-seed areas that have not reached the desired 85 % cover after the first growing season. Once cover thresholds are achieved, at least 85% vegetative coverage, perimeter filter socks/silt fences should be removed.

Section 6

USGS Saco River Watershed Boundary

StreamStats Report - Saco River - East Side Road, Conway, NH

Region ID: NH
Workspace ID: NH20180102175614324000
Clicked Point (Latitude, Longitude): 43.98304, -71.11710
Time: 2018-01-02 12:56:27 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
APRAVPRE	Mean April Precipitation	4.703	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	23.115	percent
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	1091473.3	
CENTROIDY	Basin centroid vertical (y) location in state plane units	580508.5	
CONIF	Percentaqe of land surface covered by coniferous forest	31.1295	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	52.6	feet per mi
DRNAREA	Area that drains to a point on a stream	382.95	square miles
ELEVMAX	Maximum basin elevation	6281.423	feet

Parameter Code	Parameter Description	Value	Unit
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	3.77	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0.8	percent
MINTEMP_W	Mean winter minimum air temperature over basin surface area	8.68	degrees F
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	34.0198	percent
OUTLETX	Basin outlet horizontal (x) location in state plane coordinates	1128915	
OUTLETY	Basin outlet vertical (y) location in state plane coordinates	541035	
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	9.33	inches
PREBC_1112	Mean annual precipitation of basin centroid for November 1 to December 31 period	9.76	inches
PRECIPCENT	Mean Annual Precip at Basin Centroid	49.9	inches
PRECIPOUT	Mean annual precip at the stream outlet (based on annual PRISM precip data in inches from 1971-2000)	47.2	inches
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	9.8	inches
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	19.3	inches
SNOFALL	Mean Annual Snowfall	125.181	inches
TEMP	Mean Annual Temperature	40.531	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	56.859	degrees F
WETLAND	Percentage of Wetlands	1.7955	percent

Section 7

Stream Crossing Regulations (Env. Wt 904.09)

Env-Wt 900 Stream Crossing Requirements

This project proposes to rehabilitate a Tier 3 stream crossing and therefore it must conformance with DES Administrative Rules Env-Wt 900 is required. The East Side Road Covered Bridge is coded as scour critical based, meaning that erosion around the supports (abutments and pier) can affect the structure's stability. The bridge deck, bridge cover, abutments and central pier are in serviceable condition and are not being modified. However, due to scour/erosion at the base of the abutments, and central pier, scour countermeasure protection is required and is the only work proposed at this bridge. The cost of replacement ($3M to $6M) is significantly more than the estimated cost of repairs ($450,000+/-). Replacement of the structure would also have a significant impact on local traffic and have greater impact on water quality than performing the installation of scour countermeasures. Furthermore, this covered bridge has historic significance and therefore cannot be replaced.

As noted, this 2-span historic covered bridge is currently coded scour critical and considered vulnerable to erosion/scour during severe flood events. To prevent further erosion and the potential loss of one or more of the bridge supports (abutments and piers) installation of an armoring layer of material (countermeasures) designed to resist erosion around the abutments and central pier is proposed. Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill, is individual angular stone approximately 2-3' average diameter which is proposed at selected bank locations at both abutments. The second is Partially Grouted Riprap (PGR), which is proposed to be installed in front of both abutments and around the pier. NHDES rules Env-Wt 904 does not specifically address requirements for the rehabilitation of Tier 3 Stream Crossings, however, Env. Wt 904.09 addresses Alternative Designs. The applicable regulations are noted below, with response/project description noted in *italics.*

Env-Wt 904.09 Alternative Design

(a) If the applicant believes that installing the structure specified in the applicable rule is not practicable, as that term is defined in Env-Wt 101.74, the applicant may propose an alternative design in accordance with this section.

As noted above, considering the cost, logistics, historic significance and vehicular and environmental impacts the replacement of the entire structure is not practical and therefore, the installing of scour countermeasures at the abutments and pier is a practical solution.

(b) To request approval of an alternative design, the applicant shall submit a written request to the department, accompanied by a technical report prepared by an environmental scientist or professional engineer that clearly explains how the proposed alternative meets the criteria for approval specified in (c) or(d), below, as applicable.

(c) The department shall approve an alternative design for a new tier 2 crossing, a replacement tier 2 crossing that does not meet the requirements of Env-Wt 904.07, or a new or replacement tier 3 crossing if:

(1) The report submitted pursuant to (b), above, demonstrates that adhering to the stated requirements is not practicable;

See narrative above explaining why replacement is not practicable

(2) The proposed alternative meets the specific design criteria specified in Env-Wt 904.05 to the maximum extent practicable; and

See 904.05 criterial below

(3) The alternative design meets the general design criteria specified in Env-Wt 904.01.

See 904.01 criterial below

Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings. New tier 2 stream crossings, replacement tier 2 stream crossings that do not meet the requirements of Env-Wt 904.07, and new and replacement tier 3 stream crossings shall be designed and constructed:

(a) In accordance with the NH Stream Crossing Guidelines, University of New Hampshire, May 2009, which state that stream crossing should be designed to avoid or mitigate the following problems:

- Inlet drops
- Outlet drops
- Flow contraction that produces significant turbulence and increased velocities
- Tailwater armoring
- Tailwater scour pools
- Headwater pools
- Headwater flooding
- Physical barriers to aquatic organism passage
- Embankment failures/instabilities
- Channel entrenchment
- Channel sedimentation

The proposed countermeasures do not modify the existing streambed in a manner significant enough to modify any of the existing conditions as it relates to the above criterial. Furthermore, the existing streambed does not exhibit adverse criteria as related to the above conditions.

(b) With the bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing;

The proposed materials for countermeasures are to be placed are at minimal depth and are to replace material that previously existed but has been eroded or shifted over time. A majority of the existing river bed will remain as is prior to construction and is consistent with that found upstream and downstream of the bridge.

(c) To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage;

Bank area disturbed for construction access will be restored. The area directly in front of the abutments will be partially grouted riprap. This will is comprised of stone, not dissimilar to existing conditions, in which the voids between the stones are loosely grouted. The end product has the appearance of stone on the surface but the grout links the stones together to form a mass that can resist scour under high flows.

(d) To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the functioning of the natural floodplain;

Existing alignment and gradient of the stream channel will not be changed.

(e) To accommodate the 100-year frequency flood, to ensure that:

(1) There is no increase in flood stages on abutting properties; and

(2) Flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability;

The existing structure accommodates the 100-year flood. The material placed for the scour countermeasures is insignificant in comparison to the flood storage and will not influence flood storage along this reach of the Saco River, nor will the countermeasures effect the sediment transport.

(f) To simulate a natural stream channel; and

The current stream channel is rock/boulder lined with sandy areas. A majority of the stream bed will not be changed. In the areas around the pier and abutments rock fill / riprap will be placed, material that is not dis-similar to the existing

(g) So as not to alter sediment transport competence

The quantity and thickness of rock fill / riprap placed around the pier and abutments is minimal and in the channel (between abutments) is all below OHW and therefore will not have an effect on sediment transport.

Env-Wt 904.01 General Design Considerations. All stream crossings shall be designed and constructed so as to:

(a) Not be a barrier to sediment transport;
Sediment transport is and will continue to be accommodated.

(b) Prevent the restriction of high flows and maintain existing low flows;
High and low flows are and will continue to be accommodated.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;
Movement of indigenous aquatic life will not be disrupted.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;
No alteration to flood accommodation will occur.

(e) Preserve watercourse connectivity where it currently exists;
Watercourse connectivity exists today and will continue to exist.

(f) Restore watercourse connectivity where:
1) Connectivity previously was disrupted as a result of human activity(ies); and
2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;
Not applicable to this project.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and
The bridge as existing does not cause erosion, aggradation, or scouring upstream or downstream of the crossing, nor will it post construction. Existing scour around the bridge abutments/pier will be mitigated by the scour countermeasures.

(h) Not cause water quality degradation.
The proposed project will not cause water quality degradation. All appropriate erosion and sedimentation controls will be employed during construction to protect water quality in the stream.

Section 8

NHB Results

New Hampshire Natural Heritage Bureau

To: James B. Hall
141 Longwater Drive
Suite 104
Norwell, MA 02061

Date: 5/25/2018

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 5/25/2018

NHB File ID: NHB18-1616

Applicant: Robert Landry - Administrator

Location: Tax Map(s)/Lot(s):
Conway

Project Description: The project involves armoring/scour protection of the right/left abutments and central pier of the East Side Road Covered Bridge. Scour countermeasures include Class A & B Stone Fill (angular) as well as Partially Grouted Riprap (PGR).

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

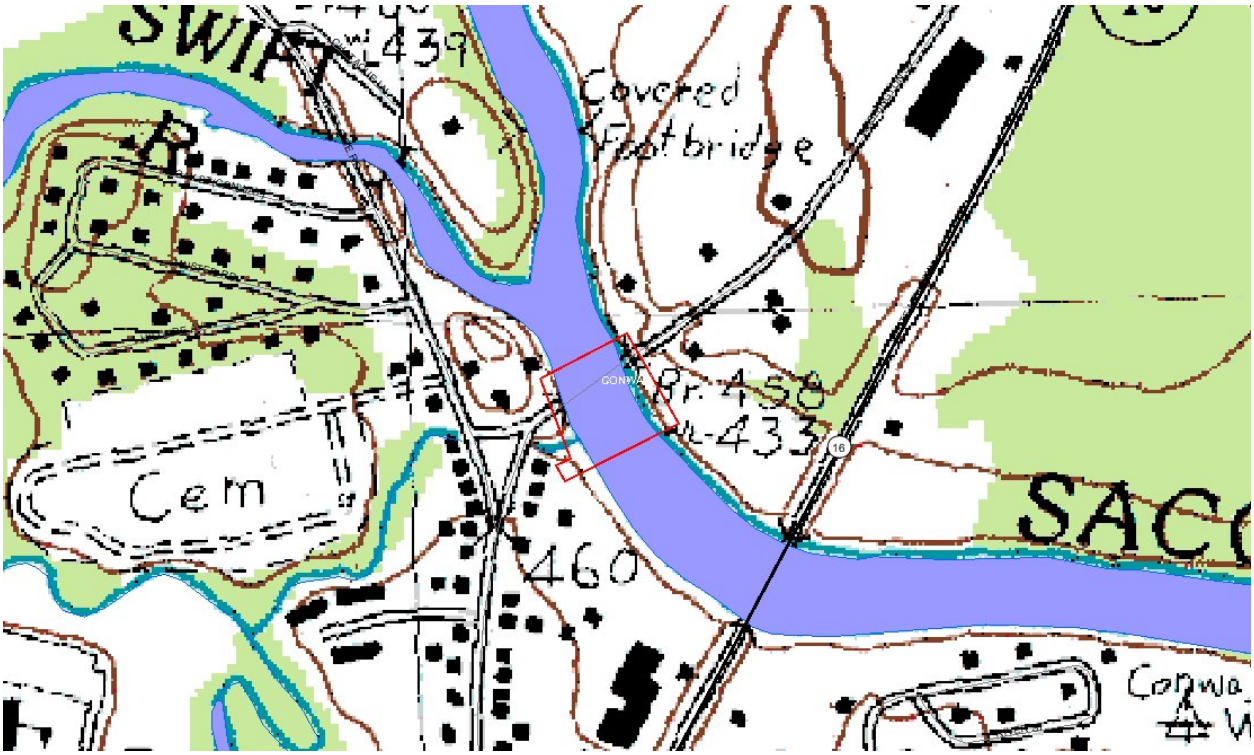
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 5/24/2019.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB18-1616



Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

Section 9

NHB/F&G Correspondence

October 23, 2015

Kim Tuttle
Wildlife Biologist
NH Fish and Game Department
2 Hazen Drive
Concord, NH 02201

Subject: Conway, 25103
East Side Road Bridge Over
the Saco River
Evaluation Request

Dear Ms. Tuttle,

The project, located on East Side Road in the Town of Conway, involves the existing two-lane covered bridge, over the Saco River (167/067). This 2 span historic covered bridge is currently coded scour critical and considered vulnerable to erosion/scour during severe flood events. The FHWA mandated Plan of Action (POA) proposed by NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and pier.

Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill is individual angular stone approximately 2-3' average diameter which is proposed at selected bank areas on both sides of the river (see Plan sheet). The second is Partially Grouted Riprap (PGR), which is proposed to be installed in front of both abutments and around the pier. PGR minimizes the impact to the placement area by using less/smaller diameter material (riprap) which requires less channel excavation/preparation and partially grouting the voids between the stones with a special high slump concrete mix. The result is a larger but thinner interlocking stable layer of stones designed to resist flood velocities much higher than with un-grouted stone.

Included with this letter is an 11x17 of the preliminary plan set, project aerial map as well as photos and project description. We are requesting that you review and provide input on the project. If you have any questions or require additional information, please do not hesitate to email me at mtaylor@chacompanies.com.

Sincerely,

Matthew Taylor, PE
Project Engineer
V:\Projects\ANY\K3\28819\Permitting\NEPA\Coverletter.doc

Section 10

USFWS IPAC Results

United States Department of Interior
Fish and Wildlife Service

Project name: East Side Road over the Saco River

Official Species List

Provided by:

New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
(603) 223-2541
http://www.fws.gov/newengland

Consultation Code: 05E1NE00-2017-SLI-1143
Event Code: 05E1NE00-2017-E-02139

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Name: East Side Road over the Saco River
Project Description: Bridge maintenance and armoring of the existing bridge footings to increase scour protection.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-71.11670136451723 43.983597760507735, -71.11783862113954 43.983196328924926, -71.11753821372987 43.982401177583995, -71.11624002456666 43.98281805437241, -71.11670136451723 43.983597760507735)))

Project Counties: Carroll, NH

Endangered Species Act Species List

There are a total of 2 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Flowering Plants	**Status**	**Has Critical Habitat**	**Condition(s)**
Small Whorled pogonia *(Isotria medeoloides)* Population: Wherever found	Threatened		
Mammals			
Northern long-eared Bat *(Myotis septentrionalis)* Population: Wherever found	Threatened		

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Section 11

USFWS Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

August 15, 2017

Ronald Crickard
Bureau of Environment
NH Department of Transportation
7 Hazen Drive
P.O. Box 483
Concord, New Hampshire 03302-0483

Dear Mr. Crickard:

Re: East Side Road Bridge Scour Protection, Conway, New Hampshire
TAILS: 05E1NE00-2017-F-1143

The U.S. Fish and Wildlife Service (Service) is responding to your request, dated July 19, 2017, to verify that the East Side Road Bridge Scour Protection Project (Project) in Conway, New Hampshire may rely on the December 15, 2016, Programmatic Biological Opinion (BO) for federally funded or approved transportation projects that may affect the northern long-eared bat (*Myotis septentrionalis*) (NLEB). We received your request and the associated Project Submittal Form on July 24, 2017.

This letter provides the Service's response as to whether the Project may rely on the BO to comply with section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) for its effects to the NLEB.

The New Hampshire Department of Transportation (NHDOT), as the non-Federal agency representative for the Federal Transportation Agency, has determined that the Project may affect, and is likely to adversely affect the NLEB. The Project proposes to install partially grouted riprap around the Conway Covered Bridge substructures, construct a temporary access road, and construct a temporary causeway into the river to allow equipment and material access to the pier. The bridge was assessed for potential bat use; no evidence of bat use was documented. Some limited tree clearing will be required for the Project to construct access points and will likely occur during the bat active season. NHDOT also determined the Project may rely on the programmatic BO to comply with section 7(a)(2) of the ESA, because the Project meets the conditions outlined in the BO and all tree clearing related to the proposed bridgework will occur farther than 0.25 mile from documented roosts and farther than 0.5 mile from any known

hibernacula. The Service reviewed the Project Submittal Form and concurs with NHDOT's determination. This concurrence concludes your ESA section 7 responsibilities relative to this species for this Project, subject to the Reinitiation Notice below.

Conclusion

The Service has reviewed the effects of the proposed Project, which include the NHDOT's commitment to implement the impact avoidance, minimization, and compensation measures as indicated on the Project Submittal Form. We confirm that the proposed Project's effects are consistent with those analyzed in the BO. The Service has determined that the Project is consistent with the BO's conservation measures, and the scope of the program analyzed in the BO is not likely to jeopardize the continued existence of the NLEB. In coordination with your agency, the Federal Highway Administration, and the other sponsoring Federal Transportation Agencies, the Service will reevaluate this conclusion annually in light of any new pertinent information under the adaptive management provisions of the BO.

Incidental Take of the Northern Long-eared Bat

The Service anticipates that tree removal associated with the proposed Project will cause incidental take of the NLEB. However, the Project is consistent with the BO, and such projects will not cause take of NLEBs that is prohibited under the final 4(d) rule for this species (50 CFR §17.40(o)). Therefore, this taking does not require exemption from the Service.

Reporting Dead or Injured Bats

The NHDOT, the Federal Highway Administration, its State/local cooperators, and any contractors must take care when handling dead or injured NLEBs that are found at the project site, in order to preserve biological material in the best possible condition and to protect the handler from exposure to diseases, such as rabies. Project personnel are responsible for ensuring that any evidence about determining the cause of death or injury is not unnecessarily disturbed. Reporting the discovery of dead or injured listed species is required in all cases to enable the Service to determine whether the level of incidental take exempted by this BO is exceeded, and to ensure that the terms and conditions are appropriate and effective. Parties finding a dead, injured, or sick specimen of any endangered or threatened species must promptly notify the Service's New England Field Office.

Reinitiation Notice

This letter concludes consultation for the proposed Project, which qualifies for inclusion in the BO issued to the Federal Transportation Agencies. To maintain this inclusion, a reinitiation of this project-level consultation is required where the Federal Highway Administration's discretionary involvement or control over the Project has been retained (or is authorized by law) and if:

1. new information reveals that the Project may affect listed species or critical habitat in a manner or to an extent not considered in the BO;
2. the Project is subsequently modified in a manner that causes an effect to listed species or designated critical habitat not considered in the BO; or
3. a new species is listed or critical habitat designated that the Project may affect.

In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending reinitiation.

We appreciate your continued efforts to ensure that this Project is fully consistent with all applicable provisions of the BO. If you have any questions regarding our response, or if you need additional information, please contact Susi von Oettingen of this office at 603-227-6418.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

Section 12

Threatened & Endangered Species Habitat Evaluation Narrative

Threatened & Endangered Species Habitat Assessment Report

East Side Road Covered Bridge Scour Countermeasure Improvements

Town of Conway, NH

CHA Project Number: 28819

Prepared for:
New Hampshire Department of Transportation
Bureau of Environment
Ronald Crickard, Chief
7 Hazen Drive
Concord, NH 03302

Prepared by:

11 King Court
Keene, NH 03431
Phone: (603) 357-2445
Fax: (603) 357-8770

September 26, 2017

V:\Projects\ANY\K3\28819\Permitting\Habitat Evaluation

SIGNATURE PAGE

This report has been prepared and reviewed by the following qualified personnel employed by CHA.

Report Prepared By:

James B. Hall
Senior Ecologist

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LIST OF APPENDICES

LIST OF ACRONYMS & ABBREVIATIONS

CHA	CHA Consulting, Inc.
IPaC	Information for Planning and Consultation
NHB	Natural Heritage Bureau
NEWS	New England Wildflower Society
NHDES	New Hampshire Department of Environmental Services
NHDOT	New Hampshire Department of Transportation
NHWA	New Hampshire Wildlife Action Plan
NHF&G	New Hampshire Fish & Game
USACE	United States Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

CHA Consulting, Inc. (CHA) was retained by the New Hampshire Department of Transportation to perform a threatened and endangered species review and habitat assessment for the proposed East Side Road Covered Bridge located at the East Side Road in the Town of Conway, Carroll County, New Hampshire. The approximate center-point coordinates of the project site are Latitude 45°58'59.00" N; Longitude 071°07'01.28" W. Location maps are provided in Appendix A.

The project involves the existing East Side Road two-lane covered bridge over the Saco River (Appendix B – Site Plans). The FHWA mandated Plan of Action (POA) proposed by NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and pier. Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill, is individual angular stone approximately 2-3' average diameter which is proposed at selected bank areas on both sides of the river. The second is Partially Grouted Riprap (PGR), which is proposed to be installed in front of both abutments and around the central pier. On the downstream/southwest side of the bridge, temporary access is proposed from private land extending upstream along the bank to the right/west abutment. On the east/left side of the river, access to the east abutment/bank will occur from the upstream, northeast/left side. A temporary causeway is also proposed from this area extending out into the river to the upstream end of the pier to allow equipment and materials access to this area. The specific height of this temporary causeway is proposed to be roughly two (2) feet above the average flow of the river for the months of August, September and October.

The purpose of this report is to identify the habitats present, identify if they are suitable for the threatened and endangered species that have the potential to occur in the project vicinity, and if the project has the potential to affect the listed species.

2.0 RESOURCE REVIEW

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) project planning tool was used to obtain an Official Species List (Consultation Code: 05E1NE00-2017-SLI-1143, dated March 22, 2017) (Appendix C) of federally-listed threatened, endangered, proposed and candidate species as well as proposed and final designated critical habitat that may occur within the boundary of the proposed project and/or may be affected by the proposed project.

The Official Species List identified the following species:

- Northern long-eared bat (*Myotis septentrionalis*) – Threatened.
- Small Whorled pogonia *(Isotria medeoloides)* – Threatened.

No critical habitats were identified as occurring within the project site.

A letter was sent to the New Hampshire Department of Environmental Services (NHDES) Natural Heritage Bureau (NHB) requesting information on the presence of state-listed and/or proposed threatened and endangered species and critical wildlife habitat in the vicinity of the project. Their March 22, 2017 response (NHB File ID: NHB 17-0857) (Appendix C) identified that they have no records of rare or state-listed animals or plants, or significant natural communities at the project site or in its immediate vicinity.

Other resources reviewed for this project included:

- aerial imagery,
- the NHDES OneStop Data Mapper and NH Granit
- the United States Geological Survey (USGS) 7.5 minute topographic map (Conway Quadrangle (northwest quadrat), Figure 2)
- the USFWS National Wetlands Inventory (NWI) map, and the
- United States Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey for Conway, Carroll County, NH (Last Modified, August 21, 2017).

3.0 HABITAT INVENTORY

On May 17, 2017, a CHA senior ecologist conducted a site visit to inventory the ecological communities (habitats) and survey for species on the project site. Ecological communities were described according to the New Hampshire Wildlife Habitat Land Cover (2015) Maps (New Hampshire Wildlife Action Plan Maps (Base Map - Granit, 2015) and *Natural Communities of New Hampshire, Second Edition* (Sperduto and Nichols). Representative photographs are provided in Appendix E.

The ecological communities/land use occurring within and adjacent to the project site include:

Terrestrial (upland)

- Hemlock- hardwood-Pine forest
- Grassland (park/open space)
- Developed or Barren Land (NLCD - National Land Cover Database)
- East Side Road Covered Bridge

Riparian/Floodplain

- Red Maple Floodplain forest
- Cobble - sand river channel

Saco River

- Open Water

4.0 SPECIES HABITAT REQUIREMENTS

4.1 NORTHERN LONG-EARED BAT

According to the USFWS[1], Northern long-eared bats spend winter hibernating in caves and mines. After hibernation ends in late March or early April, most northern long-eared bats migrate to summer roosts. The active season is the period between emergence and hibernation from April 1 – October 31. Overall, this species is not considered to be a long-distance migrant (typically 40-50 miles) although known migratory distances vary greatly between 5 and 168 miles. Suitable summer habitat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats. This includes forests and woodlots containing potential roosts, as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. They roost in cavities, underneath bark, crevices, or hollows of both live and dead trees and/or snags (≥ 3 inches dbh). They are known to use a wide variety of roost types, using tree species based on

[1] U.S. Fish and Wildlife Service. Midwest Regional Office. 2016. Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions. U.S. Fish and Wildlife Service Regions 2, 3, 4, 5, and 6. Bloomington, Minnesota.

[2] Normandeau, Glenn (NHF&GD, Executive Director) et al. *New Hampshire Wildlife Action Plan, 2015 Revised Edition*. 2015. Appendix A. New Hampshire Fish and Game Department,11 Hazen Drive, Concord, NH.

presence of cavities and crevices or presence of peeling bark. They have also been occasionally found roosting in structures like buildings, barns, sheds, houses and bridges.

According to the NHWAP[2], Northern long-eared bats are known to use caves and mines year-round and often maintain some activity throughout the winter months (Whitaker & Rissler 1992). In the White Mountain National Forest (WMNF), sixty-six percent of northern long-eared bats roosted in snags (dead trees) and the remainder roosted in live trees (Sasse 1995). They will use a variety of deciduous species, and choice may be influenced by availability. Large, tall trees with intact bark and moderate levels of decay are commonly chosen, especially if they have hollows (Sasse 1995). Most roost trees used by northern long-eared bats in West Virginia were located in 70 to 90-year-old intact forests that had not been logged in 10 to 15 years (Owen et al. 2003). However, some females have been observed roosting in actively managed industrial forests in West Virginia (Menzel et al. 2002).

4.2 SMALL WHORLED POGONIA

According to the New England Wildflower Society (NEWS)[3], the small whorled pogonia is globally rare, with most of the world's populations occurring in Maine and New Hampshire. It can be found in terrestrial anthropogenic (man-made or disturbed) habitats with mild topography, and typically grows in young, open-canopy/open understory deciduous or evergreen-deciduous forests and forest edges. It is disappearing from more mature forest habitats. Plant size and reproduction are positively correlated with higher light levels, and tests of canopy thinning appear to confirm this, suggesting a potential conservation tool. It may be found in more upland habitats and is designated with a FACU wetland indictor status.

5.0 HABITAT SUITABILITY

5.1 NORTHERN LONG-EARED BAT

According to the USFWS, the northern long-eared bat is one of the species of bats most impacted by the disease white-nose syndrome. Numbers of northern long-eared bats (from hibernacula counts) have declined by up to 99 percent in the Northeast.

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[3] New England Wildflower Society. Available from: https://gobotany.newenglandwild.org/. Accessed May 2017.

The East Side Road Covered Bridge was examined during the site evaluation on May17, 2017 for the presence/absence of NLEB and past evidence of use by bat species in general (See Appendix D, NHDOT Bat Assessment – Bridge/Structure Assessment Form). The concrete bridge abutments on the east/left bank and west/right bank, concrete and stone central pier support located mid-river as well as the predominantly wood bridge substructure and overhead bridge canopy/cover were visually inspected for bats, their droppings as well as urine staining. More inaccessible locations, such as the central pier and understory sub-structure over the river were inspected for evidence with binoculars. Auditory/vocal review included standing quietly for 30-60 seconds and listening for "chittering" and other vocalizations. Radio telemetry was not employed during this initial review. Specific areas of review included sealed and unsealed vertical crevices associated with the bridge substructure, spaces between abutment walls and the bridge deck and spaces between walls/joists of the overhead bridge canopy as identified on the NHDOT Bat Assessment Form.

The proposed work zones in vegetated areas adjacent to the bridge along the riverbanks as well as locations for the temporary access roads southwest and northeast of the bridge required to install the stone riprap and Partially Grouted Riprap (PGR) were also reviewed.

No evidence of NLEB or other bat species using the bridge/structure were observed (See Appendix C). However, it should be noted that the bridge may provide suitable habitat for roosting purposes for NLEB that are tolerant of the sounds and vibrations of vehicular use and/or sporadic human traffic.

Vegetated areas adjacent to the river are characterized as narrow bands of forested riparian zone (Red Maple Floodplain forest) with sparsely to moderately vegetated understories. Upland forests on adjacent slopes are classified as mixed coniferous-deciduous forest (Hemlock-hardwood-Pine forest). Single-family residences occur along East Side Road on both the east and west banks of the river, and Davis Park, a recreational town park with tennis courts, basketball courts and maintained grass/open space, is present on the downstream/southeast side of the bridge.

On the downstream/southwest side of the bridge, temporary access is proposed via a temporary gravel road from private property that would extend upstream along the bank to the right/west abutment as identified on the site plans (Appendix B). A small, intermittent stream on the west bank that flows from a southwesterly direction is conveyed via a box culvert (4' x 5') beneath East Side Road and joins the Saco River downstream of the bridge. The channel is proposed to

be culverted during the temporary construction/use of the gravel access road and restored to pre-existing conditions following completion of the project. On the east/left side of the river, access to the east abutment/bank will occur from the upstream, northeast side. A temporary gravel causeway is also proposed from this area extending out into the river to the upstream end of the central pier to allow equipment and materials access to this area. Tree clearing is proposed on the river banks immediately adjacent to the bridge where the scour protection countermeasures are proposed as well as associated with the temporary access roads on the southwest and northeast quadrants. Clearing will include approximately seven (7) trees (red maple (*Acer rubrum*), northern red oak (*Quercus rubra*) and slippery elm (*Ulmus rubra*)) on the east bank and approximately 12 trees (black locust (*Robinia pseudoacacia*), green ash (*Fraxinus pennsylvanica*), red maple, silver maple (*Acer saccharinum*), slippery elm, and yellow birch (*Betula alleghaniensis*)) on the west bank as identified on the Site Plans (Appendix B). Some of these trees may provide potential roosting habitat (i.e. loose peeling bark, cracks and crevices) for northern long-eared bats.

No evidence of NLEB or other bat species were documented by visual or auditory inspection of the riparian forested areas along the Saco River and no recorded documentation of roost/maternity trees or hibernacula are known to occur within 0.25 miles of the proposed project area. Conway NH is not designated as a core township for NLEB on the New Hampshire Wildlife Action Plan (NHWA) (Appendix A, Mammals – 94), although the adjacent townships of Albany, to the west, and Chatham, to the north, are designated as core habitat.

5.2 SMALL WHORLED POGONIA

Small whorled pogonia populations are identified as occurring wherever they may be found by the USFWS but are not identified specifically for the project area by the NH NHB (Appendix C). Due to the relatively small footprint of the proposed scour protection countermeasure improvements and temporary access roads, the entire work limits on both the east/left bank and west/right bank were reviewed using transect and meander survey techniques.

The road edges appear to be a mosaic of forested copses and mown/maintained herbaceous communities dominated by early successional/weedy/lawn species. Vegetated riparian floodplains (Red Maple Floodplain forest) and the lower riparian zones (Cobble - sand river channel) were characterized by dominant tree overstories but were sparsely to moderately vegetated by understory shrub/herbaceous species, presumably as a result of scour from the Saco River in the spring. The small, intermittent stream on the west bank of the Saco River conveyed

beneath East Side Road via a box culvert (4' x 5') is also sparsely to moderately vegetated with shrub/herbaceous understory species. The Davis Park recreational courts/open space and residential properties located east and west of the river are generally mown/maintained and landscaped. No small whorled pogonia plants were observed along the river banks or adjacent uplands within the project work limits during the May site evaluation.

6.0 ASSESSMENT OF POTENTIAL IMPACTS

6.1 NORTHERN LONG-EARED BAT

No NLEB or evidence of their presence was observed on the project site during the May field evaluation. However, it is unknown if sporadic or seasonal use does occur without conducting detailed surveys. Therefore, it is best to presume presence and conduct construction activities that could affect this species (tree removal, scour measure installation) when the bats are not present (October 31 through April 1) or outside of critical brooding/rearing periods in the spring. Removal of any trees ≥ 3 inches dbh during the bat active season should not be conducted between June 1 through July 31 in accordance with the USFWS final 4(d) rule that developed time-of-year (TOY) tree-clearing restrictions to avoid adverse impacts to bats that may be roosting in trees scheduled for clearing. In addition, a bridge survey will be conducted prior to construction to ensure no bats are roosting within the bridge structure. If evidence of bats are found, an assessment of use will help to determine the best timing for the work. However, it is presumed that NLEB will relocate to other areas during the during the temporary installation of the scour countermeasures and may return following completion of construction.

The USFWS has determined, in a response letter dated August 15, 2017 (Appendix C) and in accordance with Section 7 of the Endangered Species Act, that the proposed scour protection countermeasure improvements are consistent with the December 15, 2016 Programmatic Biological Opinion (BO) for NLEB and that "*the scope of the program analyzed in the BO is not likely to jeopardize the continued existence of the NLEB".*

6.2 SMALL WHORLED POGONIA

No documented populations/individuals of this species, according to the NH NHB (Appendix C), appear to be located in the project area, and no individuals or localized populations were

observed during the site evaluation. Therefore, no adverse effects are anticipated to this species or its potential habitat.

BIBLIOGRAPHY

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Section 13

NHDHR No Adverse Effect Memo/NHDOT Cultural Resource Review

New Hampshire DOT
Department of Transportation

Victoria F. Sheehan
Commissioner

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

William Cass, P.E.
Assistant Commissioner

CONWAY
X-A003(039)
25103
RPR 6778

No Adverse Effect Memo

Pursuant to the meeting on July 16, 2015 and following discussions, and for the purpose of compliance with regulations of the National Historic Preservation Act and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources (NHDHR) and the NH Division of the Federal Highway Administration (FHWA) have coordinated the identification and evaluation of historical and archaeological resources with plans to install scour countermeasures at the Saco River Covered Bridge (167/067) in Conway, New Hampshire.

Project Description:
The Saco River Covered Bridge is a two-lane bridge located on East Side Road. The project will look to install an armoring layer designed to resist erosion at the bridge pier and abutments. Two types of countermeasures are proposed for this bridge:

- Riprap will be placed at selected bank areas on both sides of the river. Riprap is typically comprised of angular stone approximately 2-3' average diameter.
- Partially Grouted Riprap (PGR) is proposed to be installed in front of both abutments and around the pier. The pier has a concrete apron around its perimeter that rises about 1-2' high. The PGR would either rise to the level of the concrete apron or slightly lower. The concrete apron is not considered a character defining feature of the bridge.

Temporary access is proposed from both the northeast quadrant of the river and the southwest quadrant of the river.

Analysis:
Based on a review pursuant to 36 CFR 800.4, we agree that the Saco River Covered Bridge is eligible for the National Register of Historic Places. There will be no impacts to the bridge superstructure. The substructure will benefit from the added scour protection. Because the majority of the impacts from the PGR will be to the concrete apron, there are no concerns with the scour measures impacting the historic nature of the bridge.

A Phase IA/IB Archaeological Investigation was completed at the project area, due to the possibility of impacting sensitive areas with the construction of the temporary access roads. The Phase IB report suggests avoiding the Davis Park Site located in southeast quadrant of the bridge.

Public Consultation:
This project has been reviewed with the Conway Board of Selectman on July 28, 2015 and December 1, 2015.

Determination of Effect:
Applying the criteria of effect at 36 CFR 800.5, we mutually agreed that the above actions will not have an adverse effect on known or potential historic resources. No character defining features of the Saco River Covered Bridge will be impacted, and no access will be utilized from Davis Park during construction. Should project impacts change, NHDOT will notify FHWA and NHDHR to determine if any additional survey is warranted.

Section 4(f) *(to be completed by FHWA)*	*There Will Be:*	☒ **No 4(f);**	☐ **Programmatic 4(f);**	☐ **Full 4 (f);** or
	☐ **A finding of *de minimis* 4(f) impact as stated:** In addition, with NHDHR concurrence of no adverse effect for the above undertaking, and in accordance with 23 CFR 774.3, FHWA intends to, and by signature below, does make a finding of *de minimis* impact. NHDHR's signature represents concurrence with both the no adverse effect determination and the *de minimis* findings. Parties to the Section 106 process have been consulted and their concerns have been taken into account. Therefore, the requirements of Section 4(f) have been satisfied.			

In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

4/26/18

Patrick Bauer, Administrator — Date
Federal Highway Administration

for

4/23/2018

Jill Edelmann — Date
Cultural Resources Manager

Concurred with by the NH State Historic Preservation Officer:

4/26/18

Elizabeth H. Muzzey — Date
State Historic Preservation Officer
NH Division of Historical Resources

c.c. Chris St. Louis, NHDHR
Jamie Sikora, FHWA
Ron Crickard, DOT
Joe Adams, DOT

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PHASE IB INTENSIVE ARCHAEOLOGICAL INVESTIGATION
SACO RIVER COVERED BRIDGE SCOUR PROJECT (BRIDGE 167/067)
CONWAY (CARROLL COUNTY), NEW HAMPSHIRE

Submitted to
Clough, Harbour & Associates Consulting, Inc.
11 King Court
Keene, NH 03431-4648

Kathleen Wheeler, Ph. D., Principal Investigator

Prepared by
Jacob Tumelaire, M.A., RPA
and Kathleen Wheeler, Ph. D., RPA

www.iac-llc.net

IAC Report No. 1276
Final Report
January 11, 2017

THIS REPORT CONTAINS CONFIDENTIAL INFORMATION
NOT FOR PUBLIC DISTRIBUTION

PROJECT SUMMARY

Project Name: Saco River Covered Bridge Scour Project

Type of Survey: Phase IB Intensive Archaeological Investigation

Client: Clough, Harbour and Associates Consulting, Inc.

Location: Saco River Covered Bridge along East Side Road in Conway (Carroll County), New Hampshire

Project Area Size: The project area is a rectilinear polygon that straddles the Saco River and encompasses the extant structure as well as shoreline landforms to the south for a total of 9,700 m² (2.4 acres).

Survey Dates: Phase IB testing November 15 and 22, 2016

Expected Impacts: Proposed impacts include sediment removal followed by the installation of stone fill and partially grouted rip-rap to stabilize existing piers and abutments against high-flow events. These activities will require the construction of two temporary access roads that will extend across riverside landforms at the southeastern and southwestern bridge quadrants. Road construction will require loam removal and the subsequent placement of geotextile and stone fill to create a stable and navigable surface.

Findings: IAC identified landforms in the southeastern and southwestern bridge quadrants as sensitive for Pre-Contact archaeological resources during a previous Phase IA sensitivity assessment in 2015 (Tumelaire et al. 2015). IAC conducted the Phase IB investigation to establish the presence or absence of ancient Native American cultural deposits within the project area. Archaeologists excavated a total of 19 shovel test pits during the Phase IB work, with five testholes located in the southwestern bridge quadrant and 14 in the southeastern quadrant. Testing of the southwestern quadrant yielded no artifacts or other indications of Pre-Contact land use. Phase IB excavations in the southeastern quadrant, however, produced 19 pieces of lithic debitage and one edge-modified flake tool fragment as evidence for a small ancient Native American activity locus within the bounds of the overall project area. IAC registered the cultural deposit with the New Hampshire Division of Historical Resources as the Davis Park site (27-CA-193).

Sites Discovered: **Davis Park site (27-CA-193):** The type and distribution of the Pre-Contact artifacts are consistent with a short-term ancient Native American activity locus occupied by a small group or perhaps a single individual to procure and process consumables from the resource-rich environment of the Saco River. The site may extend to the south beyond the current project limits.

Recommendations: IAC defined the horizontal extent of the Davis Park site within the current project area during Phase IB testing and recommends no ground disturbance in the established site boundaries. We recommend that the client construct the proposed access road through Davis Park to the north of the site and avoid any impacts to the artifact deposit. IAC will provide maps and shape files (digital images) of the site boundary that should be marked with fencing to ensure

avoidance. Any modifications to the current project plans that require ground disturbance within the site area or beyond the tested project limits will require a reevaluation of these recommendations.

No. of pages: 42
No. of Plates: 15
No. of Figures: 12

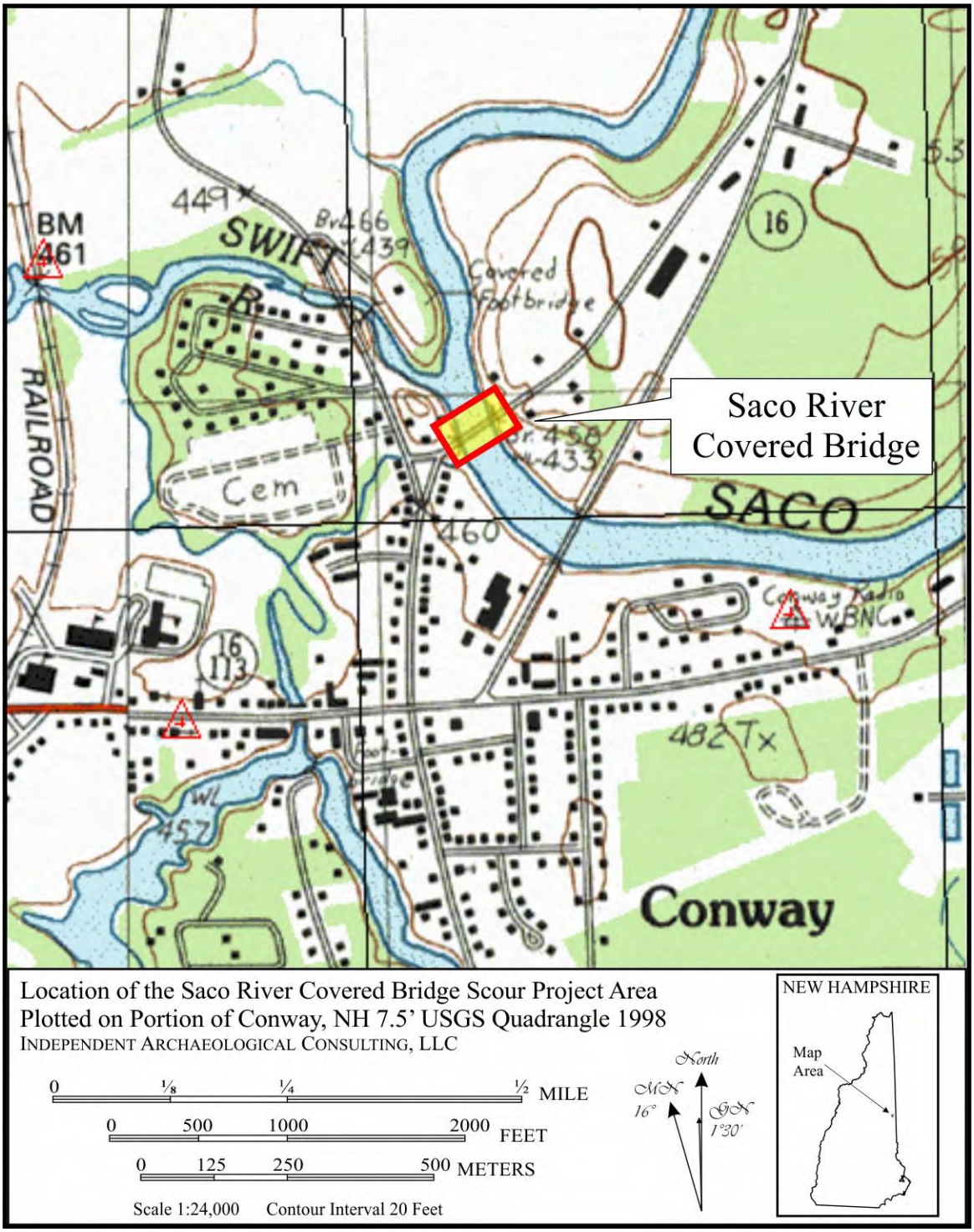


Figure 1. The Saco River Covered Bridge scour project area plotted on a USGS map of Conway (after USGS 1998).

Figure 2. Erosion countermeasure impacts and overall project area at the Saco River Covered Bridge (after CHA 2013 and 2014).

Section 14

US Army Corps of Engineers Checklist - Appendix B

US Army Corps of Engineers ®
New England District

New Hampshire General Permits (GPs)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	X	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, special wetlands. Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www2.des.state.nh.us/nhb_datacheck/. The book Natural Community Systems of New Hampshire also contains specific information about the natural communities found in NH.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	NA	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	X	
2.5 The overall project site is more than 40 acres?		X
2.6 What is the area of the previously filled wetlands?	0	
2.7 What is the area of the proposed fill in wetlands?	0	
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?	0	
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: https://www2.des.state.nh.us/nhb_datacheck/ USFWS IPAC website: https://ecos.fws.gov/ipac/location/index	X	

3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.	X	
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the GC 21?	NA	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	X	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		NA
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review**)** with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**	X	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.
** If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.
`

East Side Road Covered Bridge
ACOE Appendix B Supplemental Information

1.1 Impaired Waters; See Section 3 – Attachment A, Item # 13

2.4 Riparian Buffers; See Section 3 – Attachment A, Item # 3, 4 and 6; and,
Section 1 – NHDES Wetlands Permit Application, #14 Impact Areas; and
Section 5, Bank Restoration & Revegetation Mitigation Report

3.1 Wildlife; See Section 3 - Attachment A, Item # 7; and,
Section 10, USFWS IPAC Results
Section 11, USFWS Correspondence
Section 12, Threatened & Endangered Species Habitat Evaluation Narrative

4.1 Flooding/Floodplain Values; See Section 3 - Attachment A, Item # 3, 5 and 14: and,
Section 2, Project Locus Maps

5.0 Historic/Archeological Resources; See Section 3, Attachment A; Item # 18; and,
Section 13, NHDHR Effect Memo/NHDOT Cultural Resource Review

Section 15

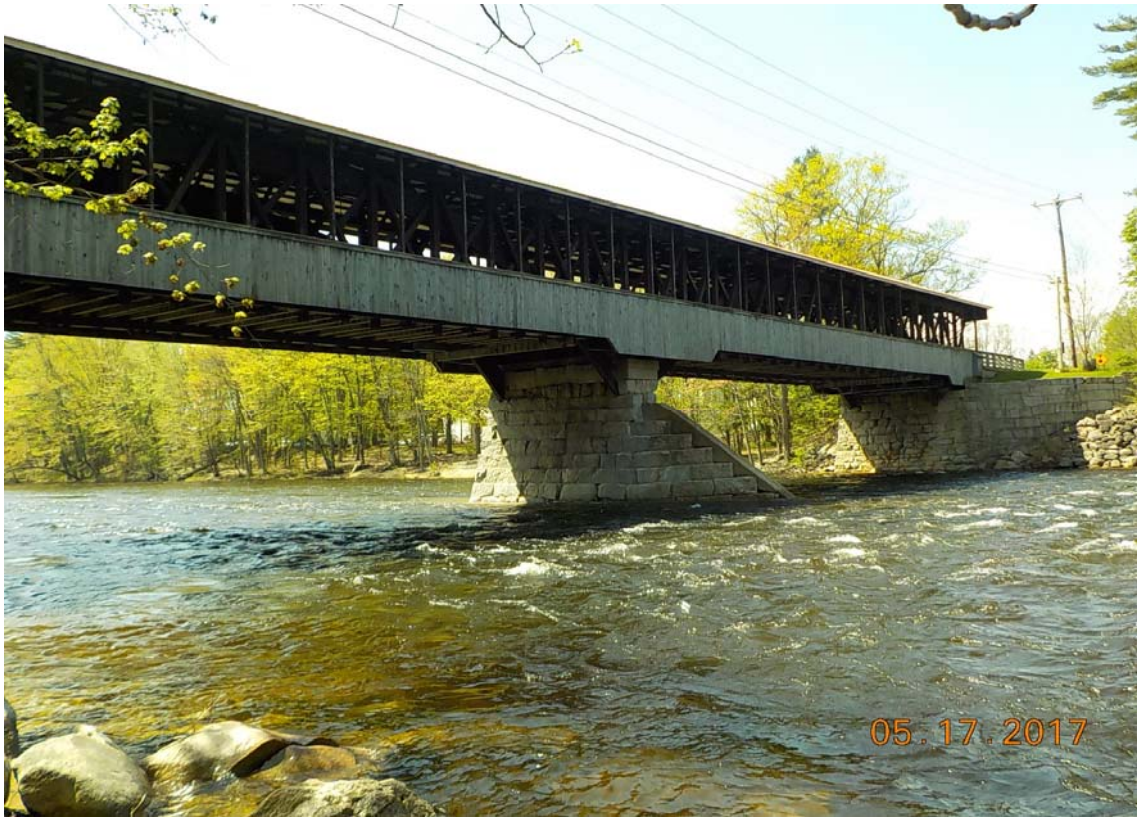
Project Photos

East Side Road, Covered Bridge over Saco River, Conway, NH

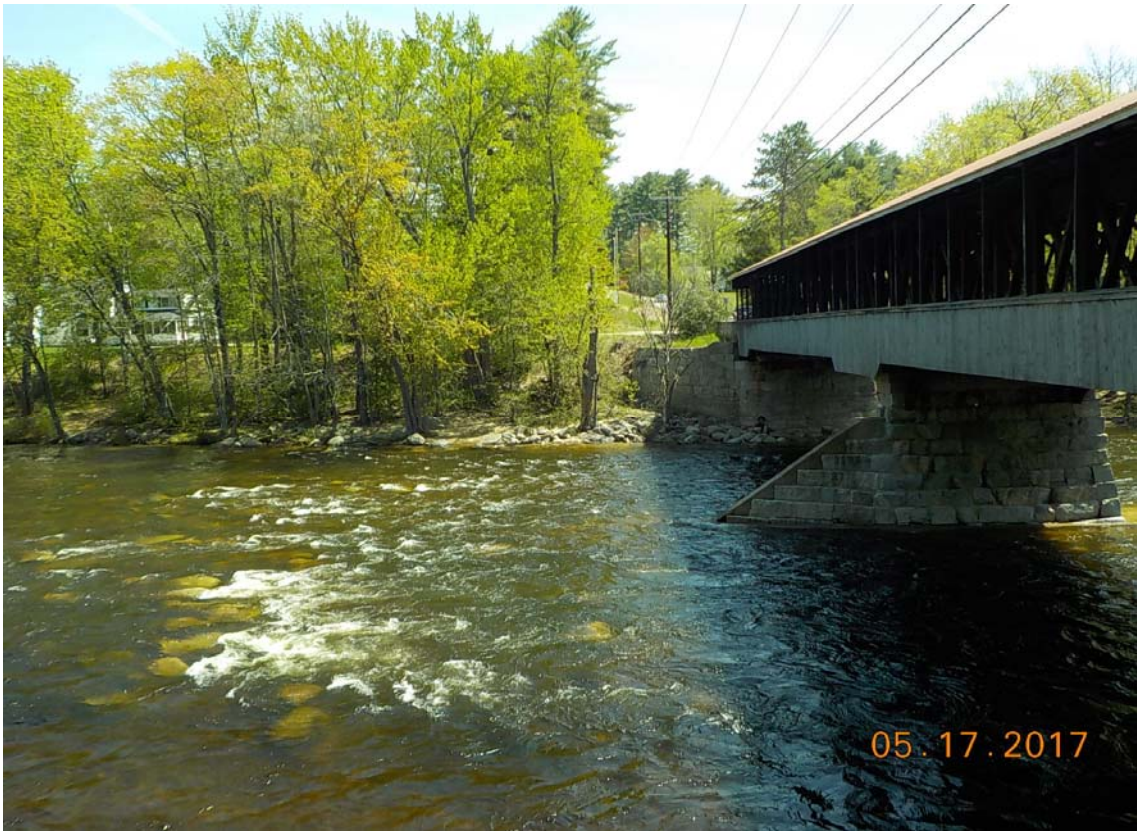
Upstream View from Bridge – Saco and Swift River Convergence

Downstream Face of Bridge over Saco River from Southwest Side

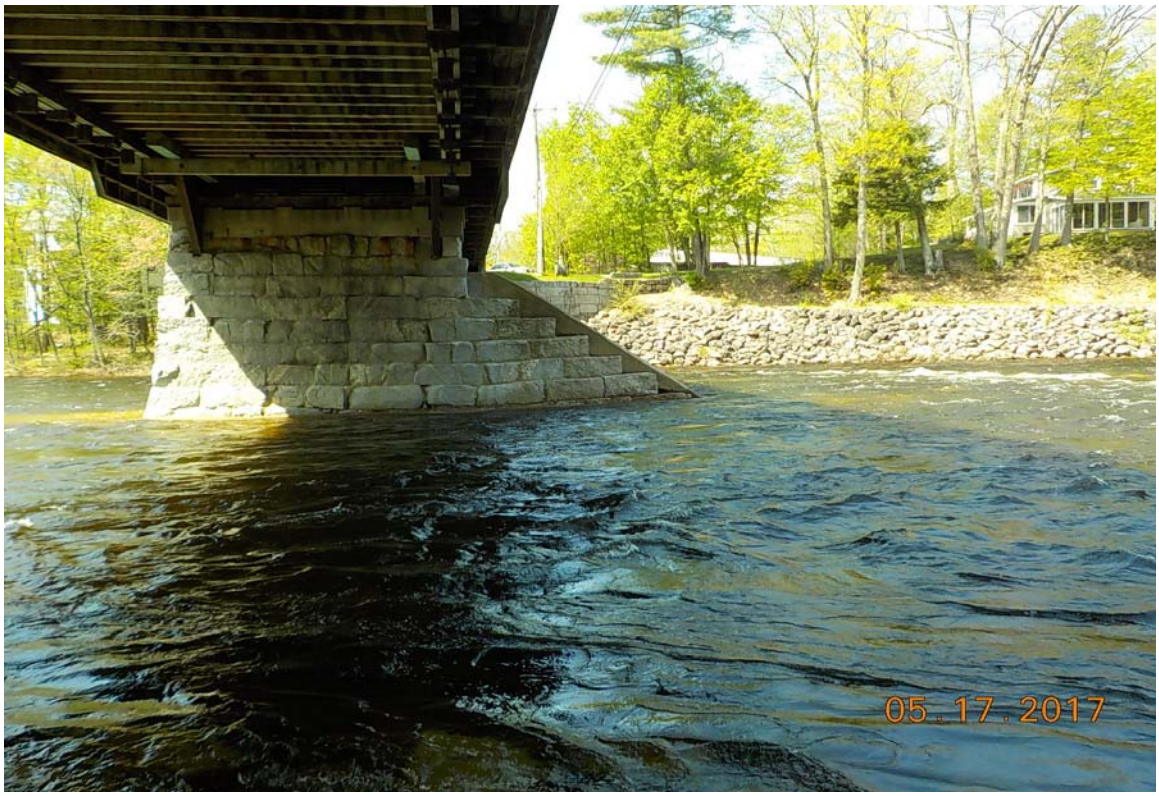
Downstream Face of Bridge over Saco River from Southeast Side



Upstream Face of Bridge over Saco River from Northeast Side



Upstream Face of Bridge over Saco River from Northwest Side – Northeast Access in Background



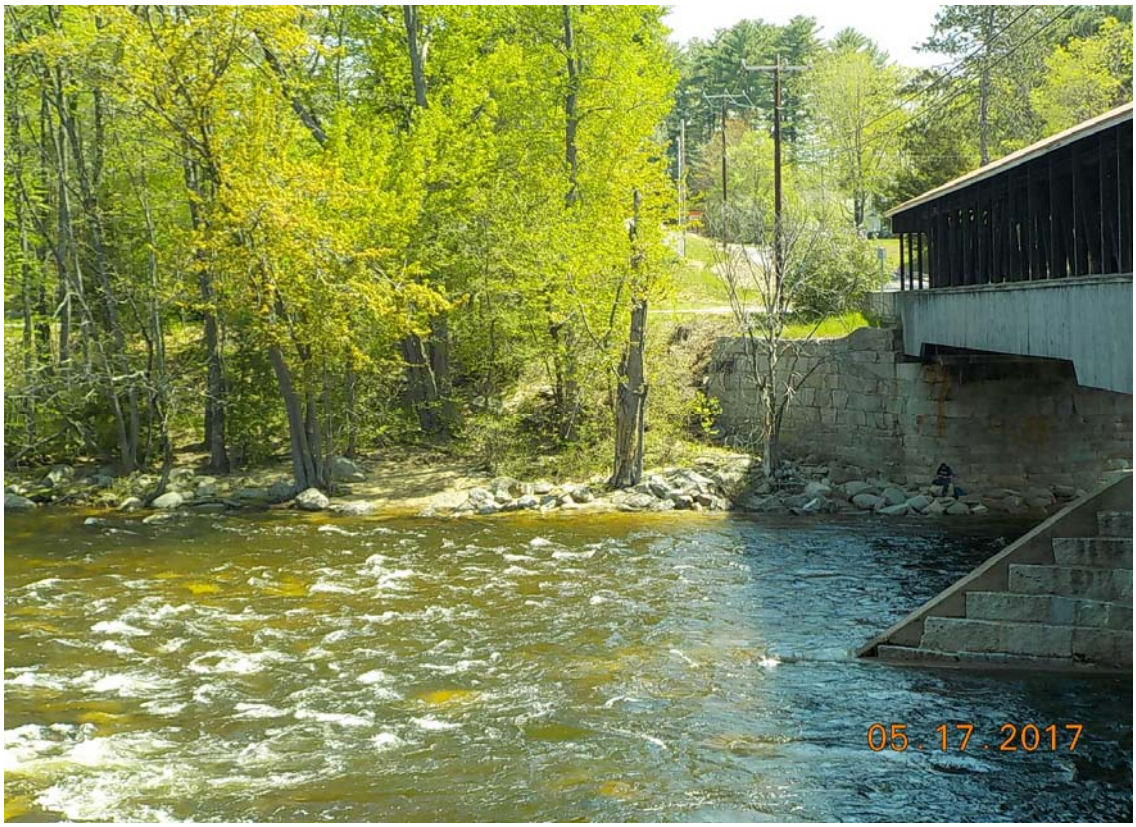
In-Stream Bridge Foundation and underside of Bridge over Saco River from Northeast Side

In-Stream Bridge Foundation over Saco River from Northwest Side
– Rust Staining from Rebar Below Crossbeam

Underside of Bridge Deck from West Side of Saco River

Bridge Entrance/Deck from West Side of Saco River

Underside of Covered Bridge Above Deck – Gypsy Moth Egg Cases Visible at Support Joists of Roof

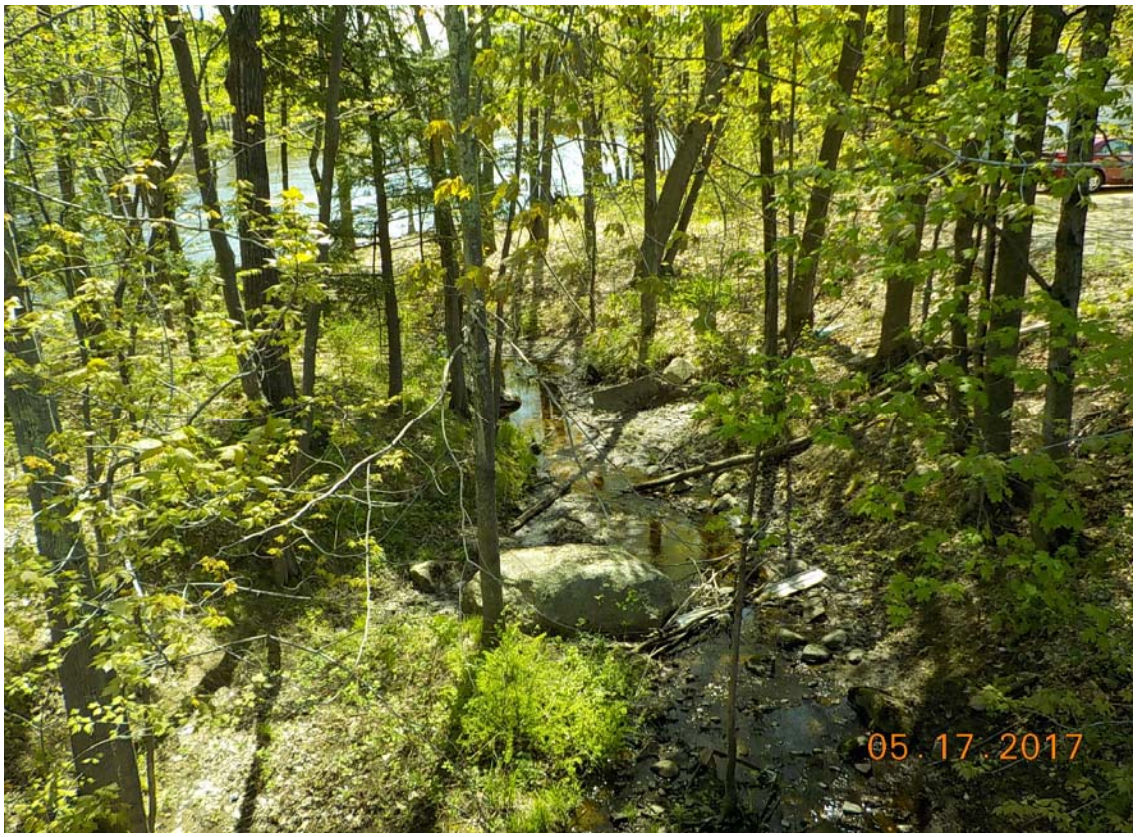


Selective Trees (≈ 5) Along Sidewall to be Cleared along Northeast River Bank Upstream of Bridge

Northern View of East Bank of Saco River Upstream of Bridge – Area Proposed to be Cleared

Selective Trees (≈ 12) to be Cleared along Southwest River Bank Downstream of Bridge

Northern View of West Bank of Saco River/Intermittent Stream Downstream of Bridge – Proposed area for Gravel Access Road



Southeast View of Intermittent Stream on West Bank of Saco River Downstream of Bridge

Northwest View of Intermittent Stream on West Bank of Saco River Downstream of Bridge

Section 16

Construction Sequence

East Side Road Covered Bridge
Construction Sequencing

- Conduct pre-construction kick off meeting/training with construction team/contractor.
- Install construction signage and warning signs.
- Survey/flag designated work limits.
- Construct temporary construction entrances/exits.
- Clear/remove vegetation from banks of river within designated work limits.
- Install perimeter erosion and sedimentation control (ESC) measures (filter socks/silt fence) at limits of work and material stockpile areas as applicable according to NHDES New Hampshire Stormwater Manual, Volume 3, Erosion and Sediment Controls (December 2008) (BMP Manual). ESC measures need to be maintained throughout the construction phase of the project and post-construction until stabilization (vegetative or structural) has been achieved.
- Clear and grub limits of work as applicable. Remove topsoil as applicable and store in designated areas for reuse during final restoration following completion of work.
- Construct gravel/rock access roads on southwestern and northeastern river banks. The access road on southwestern bank includes temporarily culverting of an intermittent stream.
- Construct causeway across left/east channel of Saco River from northeastern bank out to central pier.
- Erect coffer dams/containment barriers along abutments and around central pier according to Site Plan specifications. Dewatering pumps/structures should be set-up during this time.
- Excavate “footprints” of areas identified for scour countermeasure protection.
- Install countermeasures (Partially Grouted Riprap (PGR) and NHDOT Class A & B Stone Fill) as identified on Site Plans.
- Remove cofferdams/containment barriers along abutments and around central pier following installation of countermeasures as work within specific areas is completed.
- Remove causeway from northeastern river bank across left/east channel to central pier, access roads on southwestern and northeastern river banks and culverted intermittent stream crossing on southwestern bank.
- Grade/restore temporary work spaces to pre-existing conditions. All slopes 3:1 or steeper to be stabilized with bio-degradable erosion control blankets, etc.
- Plant root stock, hydroseed (seed mix/mulch/fertilizer(as permitted)/binder) or hand seed disturbed areas and install other restorative measures as identified on Site Plans and Bank Restoration & Revegetation Plan.
- Police work areas for equipment, construction materials, trash, etc.
- Perform vegetation monitoring for two years to assess vegetation coverage and site stability. Following the second annual inspection, the contractor will replace all plants that have not become established and re-seed areas that have not reached the desired 85 % cover after the first growing season. Once cover thresholds are achieved, at least 85% vegetative coverage, perimeter compost filter sock/silt fences should be removed.

Section 17

Env.-Wt 404 Riprap Form

Env-Wt 404 CRITERIA FOR SHORELINE STABILIZATION

The proposed scour countermeasure protection for the East Side Road Covered Bridge includes two types of armouring materials to be installed along the left and right abuttments and the central pier. These include: 1) Class A & B Stone Fill consisting of individual angular stone approximately 2-3' average diameter, and 2) Partially Grouted Riprap (PGR). The following responses address the requirements of Ent-Wt 404 requirements.

Env-Wt 404.01 Least Intrusive Method. Shoreline stabilization shall be by the least intrusive but practical method.

The proposed scour countermeasure protection solution is necessary due to the bridge coded as scour critical. It represents the least intrusive construction method and minimizes riverbank impacts while protecting the abuttments and the central pier. The areas to be stablized around the existing bridge abutments and the central pier have been previosly disturbed due to historic bridge construction, and access to the bridge foundations via temporary roads have been limited to the extent practicable. The riprap material will be limited to dirturbed areas around the abutments and central pier as appropriate.

Env-Wt 404.02 Diversion of Water. Diversion of stormwater run-off often provides effective and low maintenance erosion protection, and shall be used to the maximum extent practical.

No stormwater diversions are proposed for the project. Proposed coffer dams and turbidity barrier curtains around the proposed limits of in-water work (See Section 19, Erosion Control Plans) will protect against silt-laden discharges to, and preserve water quality of, the Saco River. On the downstream/southwest side of the bridge, a temporary access is proposed. A temporary gravel road will be constructed on private property and will extend upstream along the bank to the right/west abutment as identified on the site plans. The small, intermittent stream on the west bank south of the bridge is proposed to be culverted during the construction of the temporary gravel access road. The area will be restored/revegetated to pre-existing conditions following completion of the project. On the east/left side of the river, access to the east abutment/bank will occur from the upstream, northeast side. A temporary gravel causeway is also proposed from this area extending out into the river to the upstream end of the central pier to allow equipment and materials access to this area. The causeway will temporary block the smaller, eastern channel (left of the central pier) leaving the larger, western channel open to preserve continuous stream flow for aquatic/semi-aquatic wildlife and recreationalists.

Env-Wt 404.03 Vegetative Stabilization

(a) Natural vegetation shall be left intact on riverbanks to the maximum extent possible. Temporary impacts resulting from the installation/removal of temporary access roads will be restored to pre-existing conditions/gradients and revegetated with native species as identified in Section 5 (Bank Restoration & Revegetation Mitigation Report). Areas augmented with Class A & B Stone Fill and PGR scour protection countermeasures will not be revegetated due to erosive potential of river flows in these areas.

Env-Wt 404.04 Rip-rap.

(a) Rip-rap applications shall be considered only where the applicant demonstrates that anticipated turbulence, flows, restricted space, or similar factors render vegetative and diversion methods physically impractical.

A hydraulic study was conducted for the area to assess turbulence, flow volumes and scour potential. Class A & B Stone Fill and GPR have been selected as scour countermeasure protection for the bridge abutments and central pier.

(b) Applications for rip-rap shall include:

(1) Designation of a minimum and maximum stone size;

Class A & B stone – 2-3 feet

(2) Gradation;

	Percentage Distribution by Mass			
Stone Fill	**50%**	**30%**	**10%**	**remainder**
Class A	> 12 ft^3	3- 12 ft^3	1 -3 ft^3	spalls[1]
	50%	**40%**	**remainder**	
Class B	> 3 ft^3	1- 3 ft^3	spalls[1]	

[1] Spalls for filling voids shall be stones/broken rock ranging downward for $\leq$ 1 ft^3

(3) Minimum rip-rap thickness;

Class A & B angular stone – 2-3 feet

(4) Type of bedding for stone;

Natural bed material

(5) Cross-section and plan views of the proposed installation;

See attached Wetland Impact and Erosion Control Plans (See Sections 17 & 18).

(6) Sufficient plans to clearly indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline.

See attached Wetland Impact and Erosion Control Plans (See Sections 17 & 18).

(7) A description of anticipated turbulence, flows, restricted space, or similar factors that would render vegetative and diversion methods physically impractical.

A hydraulic study is available on request.

(c) Applications to use rip-rap adjacent to great ponds or water bodies where the state holds fee simple ownership shall include a stamped surveyed plan showing the location of the normal high water shoreline and the footprint of the proposed project.

Not applicable

(d) Rip-rap shall be located shoreward of the normal high water shoreline, where practical, and shall not extend more than 2 feet lakeward of that line at any point.

Class A & B Angualr Stone Fill and GPR is required as scour protection countermeasures and must be placed at/above the high water shoreline and extend beyond 2 feet of the lower riverbanks and into the channel.

(e) Stamped engineering plans shall be provided as part of any application for rip-rap in excess of 100 linear feet along the bank of a stream or river.

Stamped engineering plans will be provided as part of the application for riprap in excess of 100 linear feet along the bank of the Saco River.

Env-Wt 404.05 Walls.

Not Applicable.

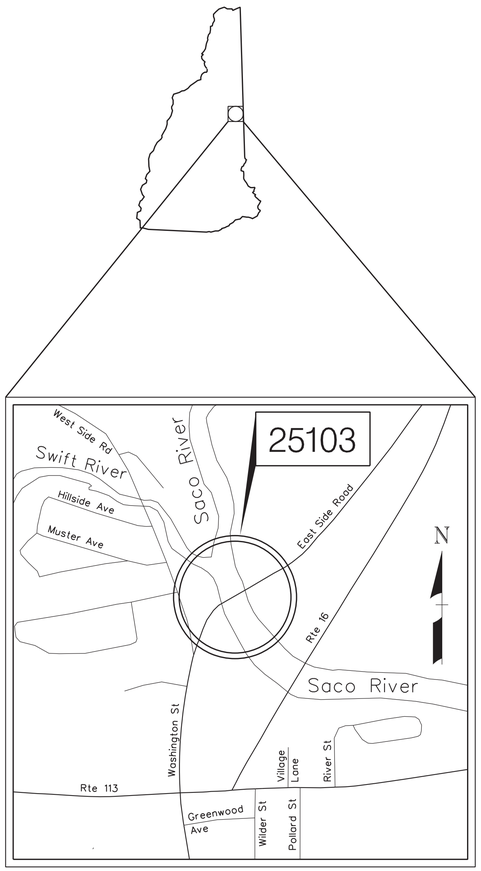
Section 18

Wetland Impact Plans

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

WETLAND IMPACT PLANS
FEDERAL AID PROJECT

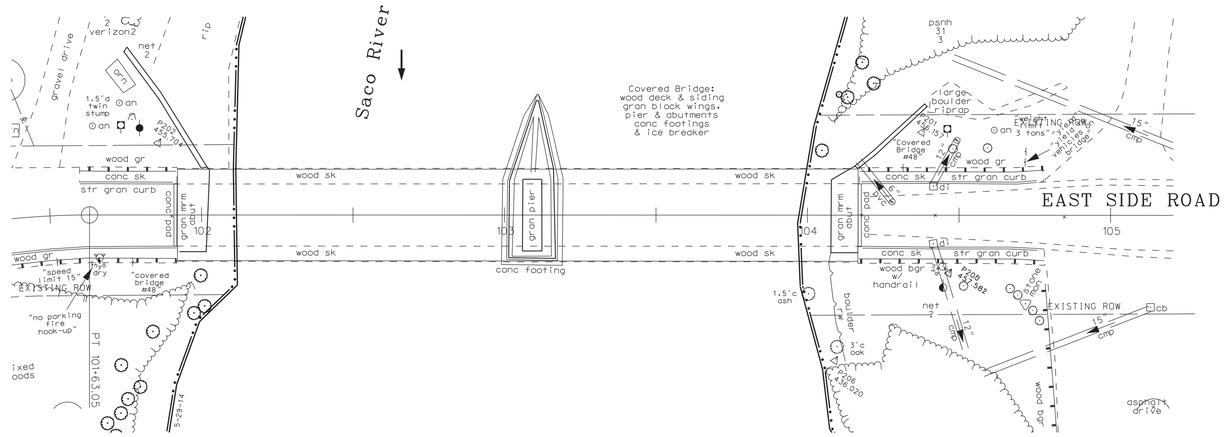
X-A003(039)
N. H. PROJECT NO. 25103
EAST SIDE ROAD OVER THE SACO RIVER



LOCATION MAP

1/2 1/4 0 1/2 1 mi.

GRAPHIC SCALE



DESCRIPTION OF WORK: INSTALLATION OF SCOUR COUNTERMEASURES AROUND THE PIER AND ALONG BOTH ABUTMENTS.

WETLAND DELINEATION BY MATT URBAN, NHDOT DATE 05-2015
REFINED 11-2016
DRAWN BY R. BROWN DATE 06-2018
CHECKED BY W. ASHFORD DATE 06-2018

PLANS PREPARED BY
Drawing Copyright © 2015
CHA
11 King Court • Keene, NH 03431-4648
Main: (603) 357-2445 • www.chacompanies.com

STATE OF NEW HAMPSHIRE
ROBERT J. FAULKNER
No. 9520
LICENSED PROFESSIONAL ENGINEER

6/29/18

TOWN OF CONWAY, NH
CARROLL COUNTY
SCALE: 1" = 25'

WETLAND
IMPACT PLANS
DATE 6/27/2018

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:

DIRECTOR OF PROJECT DEVELOPMENT — DATE

APPROVED:

ASSISTANT COMMISSIONER AND CHIEF ENGINEER — DATE

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR — DATE

FILE NUMBER	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
	25103	1	4

GENERAL NOTES

(1) THE ORIENTATION OF THE "LEFT" AND "RIGHT" NAMING OF THE ABUTMENTS IS BASED ON LOOKING DOWNSTREAM.

(2) DUE TO HYDRAULIC CONDITIONS, WORK AT THE PIER SHALL NOT BE PERFORMED CONCURRENTLY WITH WORK AT THE ABUTMENTS.

(3) WATER LEVELS WITHIN THE VICINITY OF THE BRIDGE MAY BE MONITORED USING USGS GAGE 01064500.

ACCESS FOR BRIDGE CONSTRUCTION

(1) ITEM 500.02, ACCESS FOR BRIDGE CONSTRUCTION, SHALL CONSIST OF THE DESIGN, CONSTRUCTION, MAINTENANCE AND REMOVAL (INCLUDING ANY WATER DIVERSION) OF ALL TEMPORARY ACCESS NEEDED BY THE CONTRACTOR TO COMPLETE THE WORK.

(2) COST FOR EROSION AND SEDIMENTATION CONTROL, CLEARING OF VEGETATION, STOCKPILLING AND RESTORING TOPSOIL, BANK RESTORATION, AND REVEGETATION SHALL BE INCLUDED IN ITEM 500.02.

COFFERDAMS & TURBIDITY BARRIERS

(1) ALL ITEMS COVERED UNDER SECTION 503 OF THE SPECIFICATIONS SHALL BE PREPARED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF N.H. THE CONTRACTOR SHALL SUBMIT STAMPED AND SIGNED WORKING DRAWINGS AND CALCULATIONS FOR REVIEW AND DOCUMENTATION IN ACCORDANCE WITH SECTION 105.02.

(2) COUNTERMEASURE INSTALLATION AND GROUTING AT THE ABUTMENTS SHALL BE DONE IN THE DRY. COUNTERMEASURE INSTALLATION AND GROUTING AT THE PIER MAY BE DONE IN THE WET WITHIN THE TURBIDITY CURTAIN.

(3) COFFERDAMS ARE REQUIRED AT EACH ABUTMENT LOCATION TO CONTROL THE STREAM INFLOW AND ADEQUATELY DEWATER THE COUNTERMEASURE INSTALLATION AREA. SUMP PUMPING AREAS AROUND THE ENTIRE PERIMETER MAY BE REQUIRED TO ADEQUATELY CONTROL THE INFLOW OF WATER WITHIN THE AREA DEPENDING ON THE AVERAGE RIVER LEVEL CONDITIONS AT THE TIME OF CONSTRUCTION AND THE CONTRACTOR'S METHOD OF DEWATERING. ALL COSTS FOR MATERIALS, INSTALLATION, DEWATERING, MAINTENANCE AND REMOVAL SHALL BE INCLUDED IN THE COFFERDAM ITEMS.

(4) PUMPING OF WATER SHALL BE CONDUCTED IN SUCH A MANNER AS TO PREVENT DISTURBANCE OF THE BEARING SOIL. PUMPING AREAS SHALL BE LOCATED OUTSIDE THE COUNTERMEASURE LIMITS, WITHIN THE COFFERDAMS. PUMPS SHALL BE PROPERLY FILTERED TO PREVENT THE PUMPING OF FINES.

(5) IT SHOULD BE NOTED THAT IN SOME LOCATIONS PRE-EXCAVATION OF COBBLES AND BOULDERS MAY BE REQUIRED PRIOR TO PLACING COFFERDAMS AND TURBIDITY BARRIER. DURING EXCAVATION, THE CONTRACTOR SHALL DISTURB THE AREA AS LITTLE AS POSSIBLE AND USE NECESSARY PRECAUTIONS TO MINIMIZE THE IMPACTS TO THE RIVER. ALL COSTS INCLUDED IN THE COFFERDAM ITEMS.

ESTIMATE OF QUANTITES

ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY
203.1	COMMON EXCAVATION	CY	495
304.6	CRUSHED STONE (VERY COARSE)	CY	75
500.02	ACCESS FOR BRIDGE CONSTRUCTION	U	1
503.201	COFFERDAMS - RIGHT ABUTMENT	U	1
503.202	COFFERDAMS - LEFT ABUTMENT	U	1
583.0505	PARTIALLY GROUTED RIP-RAP (PLACED IN-THE-DRY)	CY	290
583.0506	PARTIALLY GROUTED RIP-RAP (PLACED IN-THE-WET)	CY	630
585.1	STONE FILL, CLASS A	CY	10
585.2	STONE FILL, CLASS B	CY	50
645.0001	TURBIDITY BARRIER	LF	515
692.	MOBILIZATION	U	1
1010.15	FUEL ADJUSTMENT	$	2,000

BANK RESTORATION & REVEGETATION

TEMPORARY ACCESS ROADS ARE PROPOSED ON THE EAST AND WEST BANKS OF THE SACO RIVER (SEE SHEET 5, TEMPORARY ACCESS GENERAL PLAN). THESE TEMPORARY ROADS SHALL BE USED TO PREPARE FOR, TRANSPORT, AND INSTALL SCOUR PROTECTION COUNTERMEASURES AT THE EAST AND WEST ABUTMENTS AND PIER.

ACCESS TO THE RIGHT/WEST ABUTMENT IS PROPOSED FROM PRIVATE LAND ON THE DOWNSTREAM/SOUTHWEST CORNER AND EXTENDS ALONG THE BANK. A TEMPORARY PIPE CULVERT SHALL BE INSTALLED TO CROSS A SMALL INTERMITTENT STREAM IN THIS AREA. ACCESS TO THE LEFT/EAST ABUTMENT AND PIER IS PROPOSED FROM THE UPSTREAM/NORTHEAST CORNER. A TEMPORARY CAUSEWAY WITHIN THE CHANNEL IS PROPOSED TO ACCESS THE PIER.

PRIOR TO INSTALLATION OF TEMPORARY ACCESS ROADS, WOODY VEGETATION (TREES & SHRUBS) SHALL BE CLEARED AND PERIMETER EROSION AND SEDIMENTATION CONTROL (ESC) MEASURES (FILTER SOCKS/SILT FENCE) SHALL BE INSTALLED AT LIMITS OF WORK AND AROUND MATERIAL STOCKPILE AREAS AS DIRECTED (SEE CONSTRUCTION SEQUENCE).

GEOTEXTILE FABRIC SHALL BE INSTALLED UNDER ALL FILL WITHIN THE ROAD FOOTPRINTS TO ALLOW COMPLETE REMOVAL OF TEMPORARY ACCESS ROADS. ACCESS ROADS SHALL BE GRADED AS NECESSARY TO CREATE SAFE WORKING CONDITIONS.

FOLLOWING INSTALLATION OF SCOUR COUNTERMEASURES, THE TEMPORARY ACCESS ROADS SHALL BE COMPLETELY REMOVED. ALL DISTURBED AREAS SHALL BE RESTORED TO PRE-EXISTING CONDITIONS AND TOPOGRAPHY. SOILS THAT ARE HEAVILY DISTURBED (I.E. LOSS OF TOPSOIL/SURFACE LAYERS) SHALL BE AMENDED WITH 6-12 INCHES OF LOAMY MATERIAL. ON SLOPES STEEPER THAN 3:1 AND IN AREAS SUSCEPTIBLE TO EROSION, BIO-DEGRADABLE EROSION CONTROL BLANKETS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE NHDES NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS (DECEMBER 2008).

DISTURBED AREAS ABOVE ORDINARY HIGWATER (OHW) SHALL BE REVEGITATED WITH TREE AND SHRUB STOCK, AS IDENTIFIED IN TABLE 1 BELOW. DISTURBED AREAS SHALL BE REPLANTED SUCH THAT VEGETATION LAYERS WILL SIMULATE THOSE OF PREDISTURBED CONDITIONS. TABLE 1 REPRESENTS THE COMPOSITION AND DENSITY OF SPECIES TO BE PLANTED WITHIN THE RESTORATION AREAS. SPECIFICATIONS FOR PLANTING REQUIREMENTS ARE INCLUDED ON DETAIL SHEETS (SEE SECTION 13, SITE PLANS).

TABLE 1. PROPOSED VEGETATION TO BE PLANTED IN RIPARIAN ZONE RESTORATION AREAS

COMMON NAME	LATIN NAME	STATUS	ELEVATION/PLANTING DENSITY/COMMENTS	NUMBER BANK: WEST/EAST
TREES				
RED MAPLE	ACER RUBRUM	FAC	430-445 FEET; ≈ 1 PLANT / 150 SF PROVIDES FOOD AND COVER FOR WILDLIFE	3/2
SLIPPERY ELM	ULMUS RUBRA	FAC	430-445 FEET; ≈ 1 PLANT / 150 SF PROVIDES FOOD AND COVER FOR WILDLIFE	3/2
YELLOW BIRCH	BETULA ALLEGHANIENSIS	FAC	430-445 FEET; ≈ 1 PLANT / 150 SF PROVIDES FOOD AND COVER FOR WILDLIFE	2/1
GREEN ASH	FRAXINUS PENNSYLVANICA	FACW	430-435 FEET; ≈ 1 PLANT / 150 SF PROVIDES FOOD AND COVER FOR WILDLIFE	2/1
NORTHERN RED OAK	QUERCUS RUBRA	FACU	430-450 FEET; ≈ 1 PLANT / 150 SF & UPLANDS PROVIDES FOOD AND COVER FOR WILDLIFE	5/5
SHRUBS				
NORTHERN ARROW-WOOD	VIBURNUM DENTATUM	FAC	430-445 FEET; ≈ 1 PLANT / 100 SF PROVIDES FOOD AND COVER FOR WILDLIFE	3/2
BLACK CHOKEBERRY	ARONIA MELANOCARPA	FAC	430-445 FEET; ≈ 1 PLANT / 100 SF PROVIDES FOOD AND COVER FOR WILDLIFE	3/2
SILKY DOGWOOD	CORNUS AMOMUM	FACW	430-440 FEET; ≈ 1 PLANT / 100 SF & ALONG STREAM CHANNEL PROVIDES FOOD AND COVER FOR WILDLIFE	3/2
HIGHBUSH BLUEBERRY	VACCINIUM CORYMBOSUM	FACW	430-440 FEET; ≈ 1 PLANT / 100 SF & ALONG STREAM CHANNEL PROVIDES FOOD AND COVER FOR WILDLIFE	3/2
GROUND COVER				
NHDES STORMWATER MANUAL, VOL. 3, EROSION/SEDIMENT CONTROLS (DEC. 2008)	SEED MIX A OR C (SEC.4.1)' OR EQUIVALENT SPECIES AND INDICATOR STATUS VARIABLE			1.10 LBS/1,000 SF

'SECTION 4.1, SEED MIX A OR C: TALL FESCUE (*FESTUCA ARUNDINACEA*), CREEPING RED FESCUE, (*FESTUCA RUBRA*), BIRDSFOOT TREFOIL (*LOTUS CORNICULATUS*) AND/OR REDTOP (*AGROSTIS ALBA*)

ALL RESTORATION AREAS SHALL ALSO BE SUPPLEMENTED WITH AN EROSION CONTROL SEED MIX TO ESTABLISH HERBACEOUS GROUND COVER. PREPARATION OF A CLEAN, WEED FREE SOIL SURFACE IS NECESSARY FOR OPTIMAL RESULTS. THE MIX MAY BE APPLIED TO DISTURBED AREAS BY HYDRO-SEEDING (INCORPORATING MULCH/TACKIFIER AND FERTILIZER), BY MECHANICAL SPREADER, OR ON SMALL SITES IT MAY BE SPREAD BY HAND. SEED SHALL BE LIGHTLY RAKED, OR ROLLED TO ENSURE PROPER SOIL-SEED CONTACT. BEST RESULTS ARE OBTAINED WITH A SPRING SEEDING. LATE SPRING AND SUMMER SEEDING SHALL BE COVERED WITH A LIGHT MULCHING OF CLEAN, WEED-FREE STRAW TO CONSERVE SOIL MOISTURE. IF CONDITIONS ARE DRIER THAN USUAL, WATERING WILL BE REQUIRED. LATE FALL AND WINTER DORMANT SEEDING WILL REQUIRE AN INCREASE IN THE SEEDING RATE. IF PLANTED DURING THE FALL MONTHS, THE SEED MIX MAY GERMINATE THE FOLLOWING SPRING. VEGETATION MONITORING SHALL BE PERFORMED FOR TWO YEARS TO ASSESS VEGETATIVE COVERAGE AND SITE STABILITY. FOLLOWING THE SECOND ANNUAL INSPECTION, THE CONTRACTOR SHALL REPLACE ALL PLANTS THAT HAVE NOT BECOME ESTABLISHED AND RE-SEED AREAS THAT HAVE NOT REACHED 85 % COVER AFTER THE FIRST GROWING SEASON. ONCE 85% COVER THRESHOLDS ARE ACHIEVED, AT LEAST 85% VEGETATIVE COVERAGE, PERIMETER FILTER SOCKS/SILT FENCES SHALL BE REMOVED.

CONSTRUCTION SEQUENCING

(1) CONDUCT PRE-CONSTRUCTION KICK-OFF MEETING/TRAINING WITH CONSTRUCTION TEAM/CONTRACTOR.

(2) INSTALL CONSTRUCTION SIGNAGE AND WARNING SIGNS.

(3) SURVEY/FLAG DESIGNATED WORK LIMITS.

(4) CONSTRUCT TEMPORARY CONSTRUCTION ENTRANCES/EXITS.

(5) INSTALL PERIMETER EROSION AND SEDIMENTATION CONTROL (ESC) MEASURES (FILTER SOCKS/SILT FENCE) AT LIMITS OF WORK AND MATERIAL STOCKPILE AREAS ACCORDING TO NHDES NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS (DECEMBER 2008). ESC MEASURES SHALL BE MAINTAINED THROUGHOUT THE PROJECT UNTIL STABILIZATION (VEGETATIVE OR STRUCTURAL) HAS BEEN ACHIEVED.

(6) CLEAR AND GRUB LIMITS OF WORK AS APPLICABLE. REMOVE AND STOCKPILE TOPSOIL AS DIRECTED FOR REUSE DURING FINAL RESTORATION FOLLOWING COMPLETION OF WORK.

(7) CONSTRUCT TEMPORARY ACCESS ROADS AND CAUSEWAY.

(8) ERECT CONTAINMENT BARRIERS ALONG ABUTMENTS AND AROUND PIER. ERECT COFFERDAMS ALONG ABUTMENTS. ESTABLISH DEWATERING PUMPS AND STRUCTURES.

(9) EXCAVATE "FOOTPRINTS" OF AREAS IDENTIFIED FOR SCOUR COUNTERMEASURE PROTECTION.

(10) INSTALL COUNTERMEASURES AS IDENTIFIED ON PLANS.

(11) REMOVE COFFERDAMS AND BARRIERS ALONG ABUTMENTS AND PIER FOLLOWING INSTALLATION OF COUNTERMEASURES AS WORK WITHIN SPECIFIC AREAS IS COMPLETED.

(12) REMOVE TEMPORARY ACCESS ROADS AND CAUSEWAY.

(13) GRADE AND RESTORE TEMPORARY WORK SPACES TO PRE-EXISTING CONDITIONS.

(14) REVEGETATE DISTURBED AREAS AND INSTALL OTHER RESTORATIVE MEASURES AS IDENTIFIED IN THE BANK RESTORATION & REVEGETATION NOTES.

(15) PERFORM VEGETATION MONITORING FOR TWO YEARS TO ASSESS VEGETATION COVERAGE AND SITE STABILITY. FOLLOWING THE SECOND ANNUAL INSPECTION, REMOVE PERIMETER COMPOST FILTER SOCK/SILT FENCES IN AREAS THAT HAVE ACHIEVED 85% VEGETATIVE COVERAGE.

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STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CONWAY BRIDGE NO. 167/067 STATE PROJECT 25103

LOCATION EAST SIDE ROAD OVER SACO RIVER

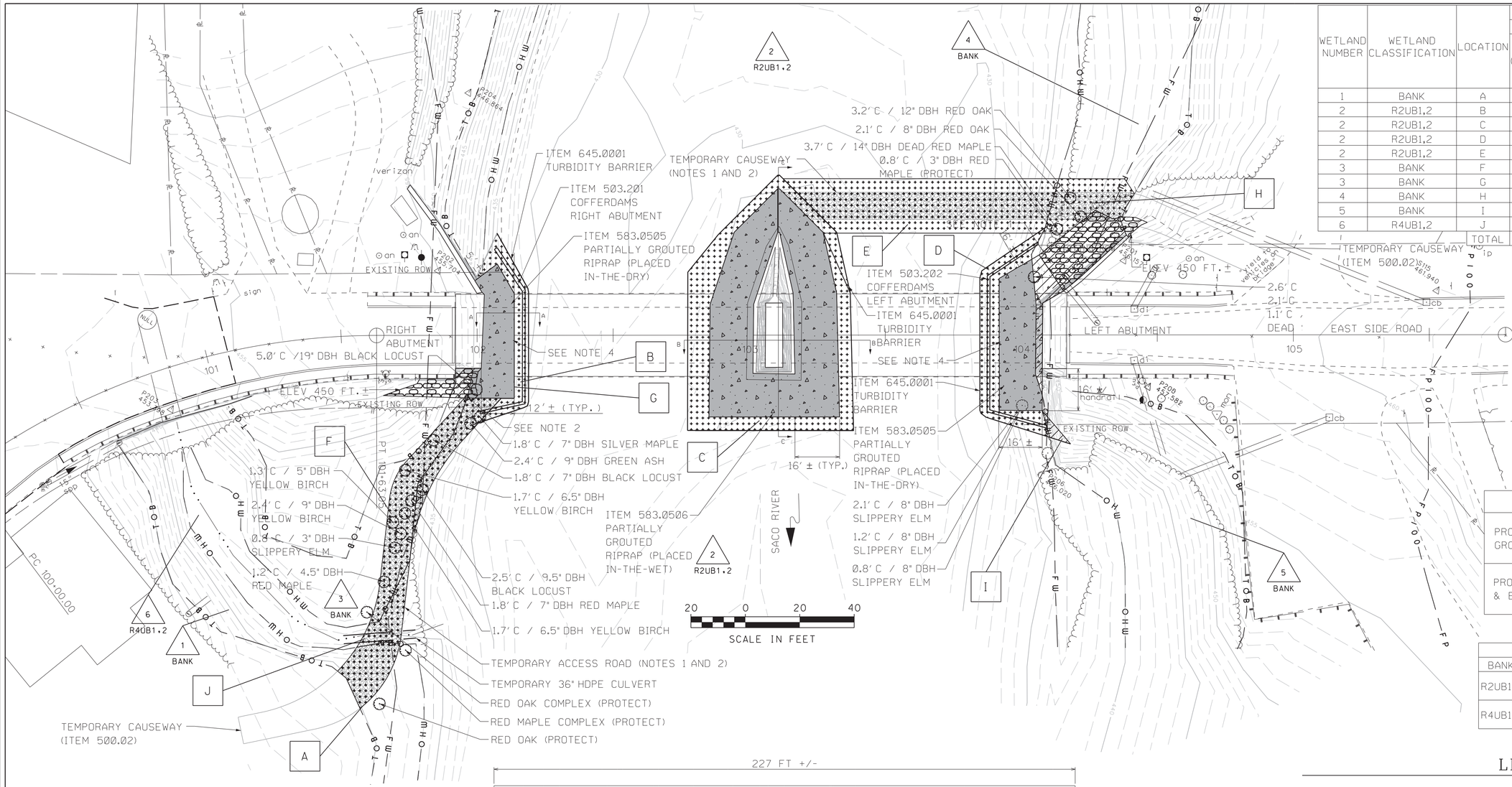
WETLAND IMPACT PLANS

BRIDGE SHEET OF

FILE NUMBER

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	SMC	6/18	CHECKED	WAC	6/18
	DRAWN	REB	6/18	CHECKED	WAC	6/18
	QUANTITIES			CHECKED		
	ISSUE DATE					
	REV. DATE					

FEDERAL PROJECT NO. X-A003(039) | SHEET NO. 2 | TOTAL SHEETS 4



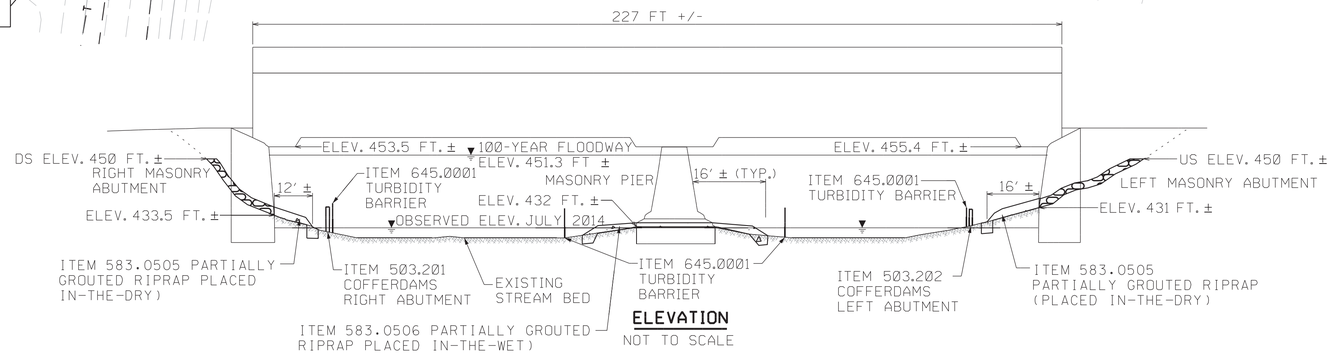
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA			
			PERMANENT IMPACTS		TEMPORARY IMPACTS	
			N.H.W.B. (NON-WETLAND) SF	N.H.W.B. & A.C.O.E. (WETLAND) SF	N.H.W.B. (NON-WETLAND) SF	N.H.W.B. & A.C.O.E. (WETLAND) SF
1	BANK	A			305	
2	R2UB1,2	B		581		736
2	R2UB1,2	C		2690		1412
2	R2UB1,2	D		715		621
2	R2UB1,2	E				1770
3	BANK	F			649	
3	BANK	G	69			
4	BANK	H	648		446	
5	BANK	I	34			
6	R4UB1,2	J				150
		TOTAL	751	3986	1400	4689

MATERIAL	LOCATION	AREA (SF)
PROPOSED PARTIALLY GROUTED RIPRAP	EAST BANK	905
	WEST BANK	558
	CENTER PIER	2690
	TOTAL	4153
PROPOSED CLASS A & B STONE FILL	EAST BANK	496
	WEST BANK	212
	CENTER PIER	Ø
	TOTAL	708

WETLAND CLASSIFICATION CODE	
BANK	NH JURISDICTIONAL RIVERBANK
R2UB1,2	RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, COBBLE-GRAVEL, SAND
R4UB1,2	RIVERINE, INTERMITTENT, UNCONSOLIDATED BOTTOM, COBBLE-GRAVEL, SAND

PLAN LEGEND

- PROPOSED PARTIALLY GROUTED RIPRAP (ITEM 583.0505 OR ITEM 583.0506)
- PROPOSED CLASS A & B STONE FILL (ITEMS 585.1 & 585.2)
- TEMPORARY CAUSEWAY (ITEM 500.02)
- FP100 – 100-YEAR FLOODPLAN
- FW – FLOODWAY
- OHW – ORDINARY HIGH WATER
- TOB – TOP OF BANK



ELEVATION
NOT TO SCALE

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

- # – WETLAND DESIGNATION NUMBER
- # – WETLAND IMPACT LOCATION
- # – WETLAND MITIGATION AREA
- MITIGATION

NOTES:

1. POTENTIAL ACCESS POINT AT DOWNSTREAM RIGHT AND UPSTREAM LEFT QUADRANTS. THE TOP ELEVATION OF THE TEMPORARY CAUSEWAY SHALL BE NO LOWER THAN 435 FT. WITH MATERIAL SLOPED AT APPROXIMATELY 1:1.5 TO THE STREAMBED. A TOTAL HYDRAULIC OPENING IN THE CAUSEWAY OF NO LESS THAN 12.5 SQ FT. IS REQUIRED.
2. CLASS A & B STONE FILL SHALL BE USED TO SUPPLEMENT EXISTING STONE ON BANKS AT ABUTMENTS, WITH LARGER STONE NEAR THE BASE AND SMALLER STONE BLENDING INTO EXISTING FOR A MINIMUM THICKNESS OF 2 FT. EXISTING STONE WITHIN THE COUNTERMEASURE LIMITS MAY BE INCORPORATED INTO THE NEW BANK PROTECTION, AS APPROVED BY RESIDENT.
3. CLEARING OF EXISTING VEGETATION SHALL BE LIMITED TO THE AREAS FOR CONSTRUCTION ACCESS AND COUNTERMEASURE BOUNDARIES.
4. RIPRAP KEY SHALL EXTEND ALONG THE ENTIRE OUTER EDGE, NOT INCLUDING THE EDGES PERPENDICULAR TO THE ABUTMENTS.
5. FLOODWAY AND FLOODPLAIN DATA FROM FLOOD INSURANCE RATE MAP PANEL Ø351D, MAP NUMBER 33003C0351D

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STATE OF NEW HAMPSHIRE
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TOWN CONWAY BRIDGE NO. 167/067 STATE PROJECT 25103

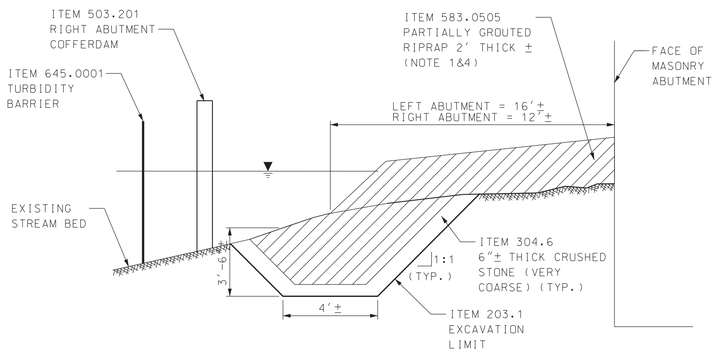
LOCATION EAST SIDE ROAD OVER SACO RIVER

WETLAND IMPACT PLANS

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	SMC	6/18	CHECKED	WAC	6/18
	DRAWN	REB	6/18	CHECKED	WAC	6/18
	QUANTITIES			CHECKED		
	ISSUE DATE			FEDERAL PROJECT NO.		SHEET NO.
	REV. DATE			X-A003(039)		3

BRIDGE SHEET OF FILE NUMBER TOTAL SHEETS 4

CHA PROJ. NO. 28819
PLOTTED DATED 6/14/2018
FILE NAME - V:\PROJECTS\ANY\K3\28819\CADD_MSTN\25103PWT.DGN



A-A - RIGHT ABUTMENT SECTION

(LEFT ABUTMENT SIMILAR)
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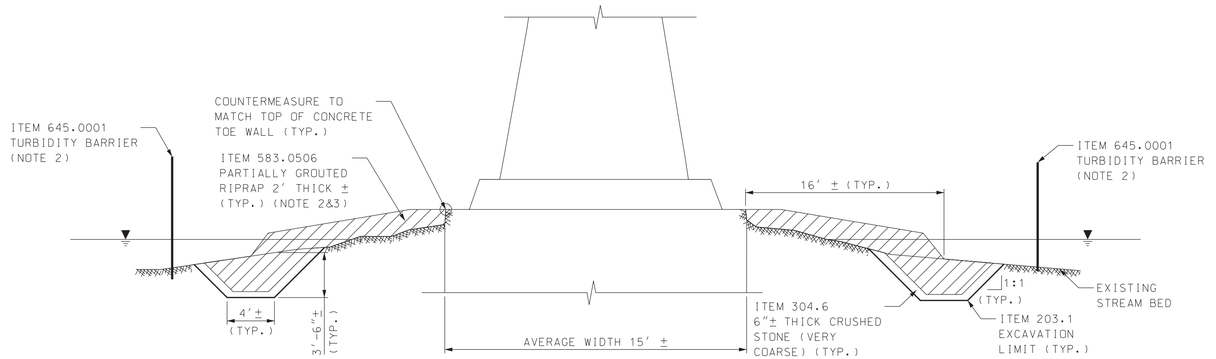
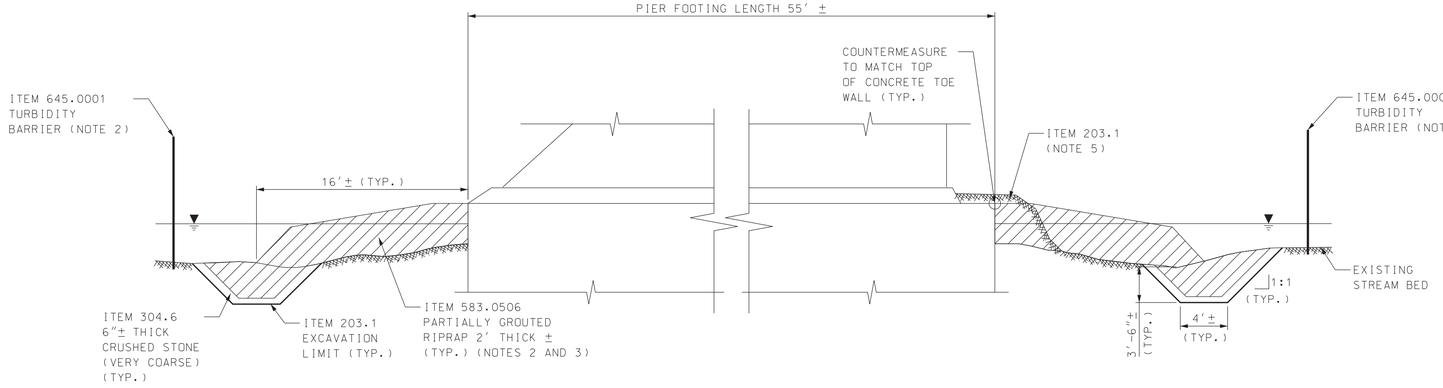


B-B - PIER SECTION

NOT TO SCALE



C-C - PIER SECTION

NOT TO SCALE

NOTES:

1. PARTIALLY GROUTED RIPRAP (PGR) AT ABUTMENTS SHALL BE PLACED UNDER DRY CONDITIONS UTILIZING COFFERDAMS. REFER TO SPECIAL PROVISION 583.0505 FOR PGR INSTALLATION DETAILS. COFFERDAMS SHALL REMAIN IN PLACE FOR 24 HOURS FOLLOWING COMPLETION OF THE PGR INSTALLATION, AFTER WHICH THEY SHALL BE COMPLETELY REMOVED. WATER DOWNSTREAM OF GROUTING OPERATION SHALL BE MONITORED FOR PH INCREASES UNTIL INSTALLATION IS COMPLETE. COST OF MONITORING SHALL BE INCIDENTAL TO RIPRAP ITEMS.

2. PARTIALLY GROUTED RIPRAP (PGR) INSTALLATION AT THE PIER MAY BE DONE IN THE WET. REFER TO SPECIAL PROVISION 583.0506 FOR PGR INSTALLATION DETAILS. TURBIDITY BARRIER SHALL BE USED AROUND THE PIER TO CONTROL ANY STIRRED UP SEDIMENT OR DEBRIS. THE CURTAIN SHALL REMAIN IN PLACE FOR 24 HOURS FOLLOWING COMPLETION OF THE PGR INSTALLATION, AFTER WHICH IT SHALL BE COMPLETELY REMOVED. WATER DOWNSTREAM OF GROUTING OPERATION SHALL BE MONITORED FOR PH INCREASES UNTIL INSTALLATION IS COMPLETE. COST OF MONITORING SHALL BE INCLUDED IN THE PGR ITEM.

3. AS APPROVED BY RESIDENT, EXISTING STONE AROUND PIER MAY BE INCORPORATED INTO THE NEW PARTIALLY GROUTED RIPRAP. REFER TO SPECIAL PROVISION 583.0506 FOR PGR INSTALLATION DETAILS.

4. AS APPROVED BY RESIDENT, EXISTING STONE AROUND ABUTMENT MAY BE INCORPORATED INTO NEW PARTIALLY GROUTED RIPRAP OR CLASS A & B STONE FILL.

5. SAND BUILT UP AT THE DOWNSTREAM NOSE OF THE PIER SHALL BE REMOVED DOWN TO THE LEVEL OF THE SURROUNDING STREAM BED. WORK SHALL BE PAID FOR UNDER ITEM 203.1.

PLAN LEGEND:

- PROPOSED PARTIALLY GROUTED RIPRAP (ITEM 583.0505 OR ITEM 583.0506)
- PROPOSED CRUSHED STONE (VERY COARSE) (ITEM 304.6)

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TOWN CONWAY BRIDGE NO. 167/067 STATE PROJECT 25103

LOCATION EAST SIDE ROAD OVER SACO RIVER

COUNTERMEASURE DETAIL SHEET

BRIDGE SHEET OF

FILE NUMBER

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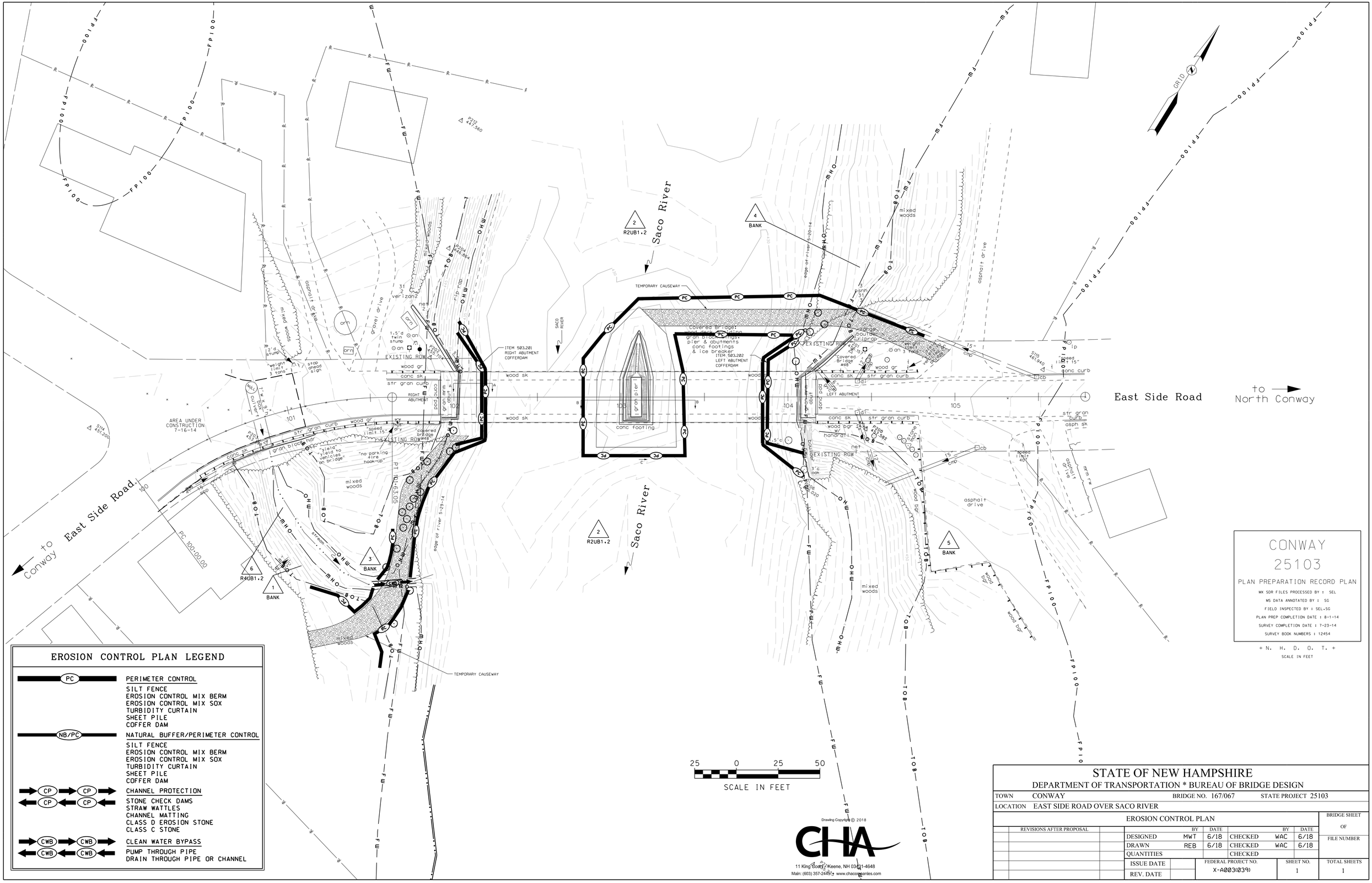
	DRAWN	LAR	6/18	CHECKED	WAC	6/18
	QUANTITIES			CHECKED		

SHEET SCALE	ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
	REV. DATE	X-A003(039)	4	4

CHA PROJ. NO. 28819
PLOTTED DATED 6/14/2018
FILE NAME = V:\PROJECTS\ANY\K3\28819\CADD_MSTN\25103DETAILS.DGN

Section 19

Erosion Control Plans



EROSION CONTROL PLAN LEGEND

PC	PERIMETER CONTROL
	SILT FENCE
	EROSION CONTROL MIX BERM
	EROSION CONTROL MIX SOX
	TURBIDITY CURTAIN
	SHEET PILE
	COFFER DAM
NB/PC	NATURAL BUFFER/PERIMETER CONTROL
	SILT FENCE
	EROSION CONTROL MIX BERM
	EROSION CONTROL MIX SOX
	TURBIDITY CURTAIN
	SHEET PILE
	COFFER DAM
CP	CHANNEL PROTECTION
	STONE CHECK DAMS
	STRAW WATTLES
	CHANNEL MATTING
	CLASS D EROSION STONE
	CLASS C STONE
CWB	CLEAN WATER BYPASS
	PUMP THROUGH PIPE
	DRAIN THROUGH PIPE OR CHANNEL

CONWAY
25103

PLAN PREPARATION RECORD PLAN

MX SDR FILES PROCESSED BY : SEL
MS DATA ANNOTATED BY : SG
FIELD INSPECTED BY : SEL.SG
PLAN PREP COMPLETION DATE : 8-1-14
SURVEY COMPLETION DATE : 7-23-14
SURVEY BOOK NUMBERS : 12454

+ N. H. D. O. T. +
SCALE IN FEET

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STATE OF NEW HAMPSHIRE
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TOWN CONWAY BRIDGE NO. 167/067 STATE PROJECT 25103

LOCATION EAST SIDE ROAD OVER SACO RIVER

EROSION CONTROL PLAN

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
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	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	
	REV. DATE		X-A003(039)		1	

BRIDGE SHEET OF FILE NUMBER TOTAL SHEETS 1

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PLOTTED DATED 6/14/2018
CHA PROJ. NO. 28819